

# FOREST STRONG: Timber Solutions for Disaster Resilient Coastal Development

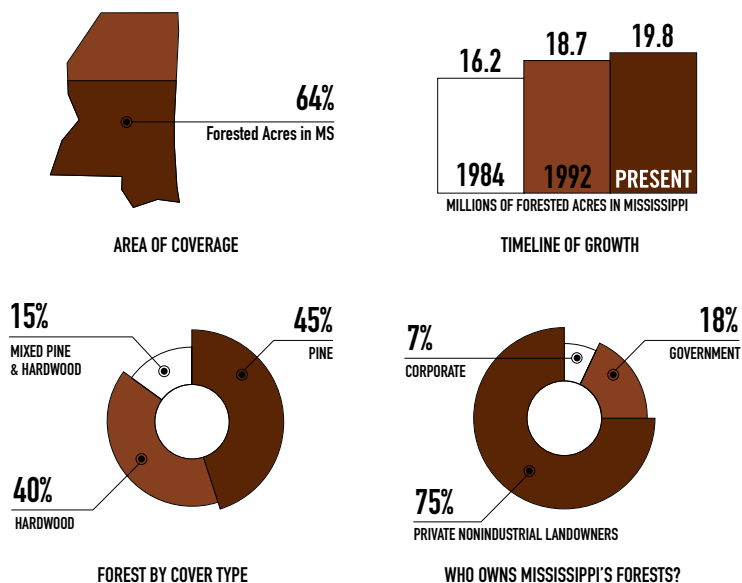
## COURSE INTRODUCTION

Mississippi is a timber state - Mississippi is Forest Strong. The state contains approximately 19.8 million acres of forested land, which accounts for 64 percent of Mississippi's total area. The value of timber harvesting in Mississippi has averaged in excess of \$1 billion per year over the past 20 years and accounts for over 60,000 jobs in the state. The careful planning and execution of sustainable silviculture, forest management practices and harvesting of timber has strategic long-term benefits for Mississippi. In addition, the continued development of manufacturing facilities that utilize innovative technologies to generate competitive timber products is of critical importance to the future of Mississippi and the region.

At the same time, Mississippi is vulnerable. The increased frequency of catastrophic weather events places our communities and businesses at significant risk. The Mississippi Gulf Coast is particularly vulnerable to hurricanes and other severe weather systems that continually devastate its heavily populated coastlines. In August of 2021, Hurricane Ida made landfall along the Gulf Coast and eventually traveled north to New York, causing significant damage tallying nearly \$95 billion, making it the 7th costliest hurricane since 2000.

In order for Mississippi to be truly strong, we must find innovative ways to construct the built environment for a resilient future. This begins by looking at wood in new ways to generate new solutions. It also requires a holistic forest to frame approach wherein the entire chain of custody is examined as we work toward a carbon positive future.

### ACREAGE AND OWNERSHIP



## COURSE FRAMEWORK

The course, *Forest Strong: Timber Solutions for Disaster Resilient Coastal Development*, is proposed to take place in the fourth-year integrative design studio (ARC4546 Architectural Design IV-B) at Mississippi State University. It will explore mass timber and other innovative wood products as catalysts for architectural solutions that address the impacts and realities of severe weather events. The specific project site and building program will be determined during the months leading up to the execution of the course as per the workplan outlined on page 3 of this document. The studio will employ several on-site and immersive activities that will give students a broader and more comprehensive perspective of the timber industry.

The course will endeavor to better understand the issues surrounding climate change and coastal resiliency by working directly with our strategic partner, the Gulf Coast Community Design Studio. GCCDS was established in Biloxi, Mississippi in response to Hurricane Katrina to provide architectural design services, landscape and planning assistance, educational opportunities and research to organizations and communities along the Mississippi Gulf Coast. GCCDS works through close, pragmatic partnerships with local organizations and communities in and beyond the three Mississippi coastal counties, putting professional expertise to work in order to shape vibrant and resilient Gulf Coast communities. The studio will travel to the Gulf Coast to meet with the design professionals of the GCCDS and participate in a series of resiliency workshops.

In addition, the studio will partner with the Mississippi Forestry Association. MFA was founded in 1938 and is the only statewide non-profit organization dedicated to sustaining Mississippi's forests. Through this partnership, the studio will have the opportunity to visit a sustainably managed forest and meet with a licensed forester to discuss forest ecology, silviculture practices and certified management strategies. This will be followed by a tour of a local saw mill where studio participants will become better acquainted with timber optimization and machine automation as logs are transformed into dimensional lumber and other wood products. A visit to the Department of Sustainable Bioproducts on the MSU campus will introduce the studio to destructive and non-destructive wood testing, lumber grading and design values. The studio will also visit a CLT plant where they will see first hand the advanced fabrication techniques of engineered wood panels - and begin to understand the potential of a CLT "blank". These immersive experiences will help to ensure that students understand wood as a real material and not an abstract object. Knowledge of material history, properties and potentials will be essential to the students development of architectural proposals throughout the course.

Mass timber architects and design professionals will be engaged throughout the semester to introduce their work to students through virtual presentations - providing professional expertise and critical material understanding to the class. These presentations will act as a mini mass timber lecture series and will be recorded and archived as part of the School of Architectures mass timber digital library.

Finally, students will learn how to calculate the amount of sequestered carbon their mass timber structure contains and critically compare it against other structural systems/materials. They will also calculate the embodied energy and provide comparative analysis across several material selections.



Mill tours, building tours, office visits

## READINGS AND RESOURCES

### **BLANK: Speculations on CLT (2022)**

Jennifer Bonner and Hanif Kara

### **Cross Laminated Timber: A design stage primer (2021)**

Nic Crawley

### **Embodied Energy and Design: Making Architecture Between Metrics and Narratives (2018)**

David Benjamin

### **The New Carbon Architecture: Building to Cool the Climate (2017)**

Bruce King

### **The Age of Wood: Our Most Useful Material and the Construction of Civilization (2020)**

Roland Ennos

## WORK PLAN

### **2022**

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January	Timber Education Prize Winners Announced
March 17-19	ACSA 110th Annual Meeting in Los Angeles, Timber Education Prize Session

#### **Objective #1: Organize Course Syllabus (summer / fall 2022)**

- Clarify course learning objectives
- Define course schedule outline

#### **Objective #2: Organize a series of resiliency workshops with GCCDS (summer 2022)**

- Contact David Perkes and staff at GCCDS
- Develop workshop goals, framework and delivery method
- Identify community partners that might assist
- Determine workshop date(s), virtual vs. in-person format
- Determine date for visit to GCCDS

#### **Objective #3: Organize site visits with MFA (fall 2022)**

- Contact Tedrick Ratcliff and staff at MFA
- Develop timeline for site visits (forest, mill, CLT plant)
- Develop agenda and learning objectives of tours
- Contact venues to set up tours

#### **Objective #4: Organize visit to lumber testing facility at MSU (fall 2022)**

- Contact Rubin Shmulsky at MSU Department of Sustainable Bioproducts
- Determine date for visit
- Determine agenda and learning objectives for visit

#### **Objective #5: Organize mini mass timber lecture series (summer 2022)**

- Generate short list of mass timber architects or design professionals
- Develop desired learning outcomes for lectures
- Contact mass timber architects or design professionals

#### **Objective #6: Determine project site and program (summer / fall 2022)**

- Evaluate project sites along the Mississippi Gulf Coast
- Coordinate efforts with GCCDS

### **2023**

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January	Forest Strong Studio begins
May	Forest Strong Studio concludes