Eskew+Dumez+Ripple Winter 2012 Edition

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The Mississippi River as linear datum along which the spatial relationships of Eskew+Dumez+Ripple projects are constrained. 2011.

# AIA 2030 COMMITMENT

The AIA 2030 Commitment provides a national framework for firms evaluate the impact design decisions have on an individual project's energy performance. To achieve the energy reduction goals of 2030, Eskew+Dumez+Ripple apply the principles of sustainable design to every project from its inception and early design through project completion and ongoing building operations.

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#### WHO WE ARE **FIRM PROFILE**

Eskew+Dumez+Ripple is a design-driven studio producing diverse projects in architecture, interior environments, and urban strategies. By blending a signature collaborative process with professional talent, creative thinking and emerging technologies, we meet the needs of our clients through unique and efficient problem solving.

We create distinguished projects of their own time and place whose authenticity is expressed in each aspect of massing, scale, urban siting, design details and sustainable materials. Our commitment to enhance and protect both the cultural and natural environments of the communities we serve is evident in the beauty and technical craftsmanship of our designs and the long-term sustainability of our projects.

Based in New Orleans, we use the world-renowned cultural heritage of our city as inspiration for a design practice of national range and recognition. The result is a vibrant portfolio that includes research laboratories, marine facilities, interpretative centers and museums as well as office buildings, hospitality spaces, academic and health care facilities.

Seven firm Principals lead our cross-disciplinary studio of professionals, promoting design excellence, efficient project delivery, and mastery of technical construction systems. We actively pursue environmental sustainability, elegant craftsmanship and spirited collaboration with our clients and our communities.







### WHO WE ARE **Statement of Purpose**

We believe that design excellence combines beauty, function, economy, and performance. Our goal is to make places that both function and inspire. We challenge our staff to base their design on an analysis of site and climate, design to use energy & water sparingly, and consider the consequences of materials choices on the health of occupants, the greater community, and the environment. Some call this approach 'sustainable design.' We believe it is just good design.

This philosophy affects both what we design and how we run our business. We set and track goals throughout the design, construction, and evaluation process. We reinforce this way of thinking in the way we work with clients, how we attract and grow our staff, and how we operate our workplace.

This plan describes where we are as a studio today, and the steps we will take to work more responsibly in the future and create better projects for our clients.



#### 2030 COMMITMENT PATH TO NET ZERO

As a signatory to the AIA 2030 Commitment, Eskew+Dumez+Ripple has joined the ranks of firms pursuing aggressive reductions in utility-supplied energy use. The 2030 Commitment measures building energy use of new & renovated buildings against a baseline survey of existing buildings. Specifically, it

tracks the Energy Use Intensity (EUI—the annual energy use divided by project floor area) for buildings and compares it with a comprehensive survey of different building types compiled in 2003.

"Our design work in the 2010-2015 period targets a 60% reduction from these baseline comparables in utility energy use."

At the start of each project, project managers are expected to identify performance benchmarks against which the project will be compared throughout the design, construction, and occupancy phases. These benchmarks can include average energy use of comparable build-

ings in the region and leadership projects that establish best practices for the building's program type. Though total energy reduction is still short of the 60% goal, our work in LPD reduction, energy modeling, and post occupancy data collection compare favorably with the other reporting firms.



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#### THE IMPACT Emissions reductions

In the United States, buildings use almost half of all energy and three quarters of all electricity





1. BOZEMAN FISH TECHNOLOGY CENTER Measured EUI: 116 (23% better) 2. ESTUARINE HABITATS RESEARCH CENTER Measured EUI: 185 (50% better) 3. 930 POYDRAS RESIDENTIAL TOWER Measured EUI: 40 (18% better) 4. NEW ORLEANS BIOINNOVATION CENTER Measured EUI: 116 (69% better)



We encourage all clients share with us their electric and gas utility usage data for at least 24 consecutive months after the project is complete. We compare this data with design-phase predictions. On selected projects, we work with our engineers, the general contractor, and the owner's staff, to look for opportunities to 'tune' performance after occupancy. We are now experimenting with measuring achieved thermal conditions and occupantreported comfort—since the real goal is not just to save energy but to deliver comfortable spaces at the lowest energy use.

We first began tracking actual energy performance on selected projects in 2010. By 2011, projects comprising 81% of the floor area in our whole-building project portfolio had agreed to allow collection of utility data once these projects are complete. This compares favorably with the average 45% for all firms reporting their progress on the 2030 Commitment in the same year.

As the complexity of mechanical systems has increased over time, buildings—even those receiving commissioning—require a significant "shake-down" period after occupancy for the building systems, the operator, and the occupants to all learn to work effectively together. At our own expense and with the collaboration of engineering and construction partners, we have initiated pilot studies on several projects to understand ways of building that shorten the time between building opening and full-performance operation.

In 2012, in collaboration with our newly appointed Research Fellows, we will set up a portfolio tracking system (following the framework of EnergyStar Portfolio Manager) to allow us to compile performance data while preserving client privacy.

#### Ways of displaying performance



Project Performance Profile: EDR + LA USGBC





5. LAMAR ADVERTISING CORPORATE HEADQUARTERS Measured EUI: 54 (28% better) 6. L.B. LANDRY REPLACEMENT HIGH SCHOOL Measured EUI: 61 (9% better) 7. LOUISIANA SPCA CAMPUS EXPANSION Measured EUI: 93 (25% better)

8. MYRTLE BANKS DEVELOPMENT Measured EUI: 105 (25% better)





Energy reduction for eight projects: 1998 - 2012



NEW ORLEANS BIOINNOVATION CENTER Monitoring: The ventilation system MAKE IT RIGHT PROTOTYPE HOUSE Monitoring: Indoor and outdoor temp. ROSA F. KELLER LIBRARY Monitoring: Carbon dioxide levels

#### TRACKING RESULTS INDOOR ENVIRONMENT

Post-occupancy monitoring is key to the future of sustainable design. In 2012 we began using a variety of tools to measure and track the interior environmental conditions of the buildings we design. After a successful trial period where data loggers were deployed for a few weeks at a time, we are now in the process of purchasing permanent data logging equipment for select buildings. We plan on investing in monitoring equipment for five additional buildings each year.



Raw data: "Make it Right" prototype



Usable analysis: CO<sub>2</sub> Concentration at Keller Library





**TRANSFIGURATION OF THE LORD CHURCH** Survey: Comfort during services

EDR Office Comfort

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**930 POYDRAS RESIDENTIAL TOWER** Survey: Thermostat set points

ESKEW+DUMEZ+RIPPLE STUDIO EXPANSION Survey: Real time web based

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The goal of sustainable design is to provide more comfort for less energy. Beginning with our own office, we have developed and fine-tuned techniques to measure and monitor comfort and we use this data to alter operations to improve comfort. We found that people tend not to discuss being uncomfortable for fear of being seen as a squeaky wheel, but will report their comfort honestly when surveyed. For this reason, surveying comfort is the only way to accurately see how a space is performing. Through surveying, we found a comfort gradient through the studio and we are experimenting with improving comfort by changing the seating arrangement. After the success we had in our own studio, we are now surveying comfort in two of our building and plan on expanding further.



After 60%

20% 0%

Hot

Warm

Comfortable

Cool

Intervention 40%



Web based comfort survey

ESKEW+DUMEZ+RIPPLE \_ 11

Cold



#### SIMULATION BASED NEW ORLEANS ARENA

During schematic design of our larger projects, we use computer simulation tools to inform choices in envelope and glazing design. For projects in hot climates, controlling solar heat gain early in the design process greatly reduces total energy use. Analyses of our addition to the New Orleans Arena showed that one existing window was responsible for 38% of the total solar heat gain for the project. We came up with a series of iterations and evaluated each design for its reduction in solar heat gain. As the design progressed, summer solar heat gain reduced by more than half.



Reduction in summer solar gain





Percent of total summer solar heat gain by window



Analysis of shading on the largest glazed area

**NEW ORLEANS ARENA RENOVATION** Solar heat gain reduction

**TULANE UNIVERSITY MAIN LIBRARY EXPANSION** Lighting controls retrofit

# TULANE UNIVERSITY LIBRARY

The Tulane University Library uses twice the electricity per square foot than the average university building and accounts for 12% of the energy use of Tulane's entire campus. During a project adding two new floors on top of four exiting floors, we saw an opportunity to retrofit the lighting of the exiting floors with occupancy sensors, providing all the lighting needed, but only when it is needed. To determine the effectiveness of this strategy, we placed data logging occupancy sensors in the stacks and found that while the library has over 3000 visitors each day, each aisle of stacks is visited only 8 times per day. Using this data, we were able to calculate that the stacks would be lit only 10% of the time and the building would reduce its energy consumption by over 35%, saving \$180,000 a year.





Monday

Friday Saturday

Stacks occupancy data ~ 8 visits per day

Thursday

Tuesday





Sunday

Occupants tended to stay in the study areas





#### OPERATIONS TRANSFIGURATION OF THE LORD

Six months after reopening, the Transfiguration of the Lord Church, a post-Katrina renovation project that we completed in 2011, was on track to spend \$60,000 a year in energy costs - more than 8 times the national average for houses of worship. By deploying data logging devices, we were able to suggest strategies that resulted in cutting the energy use in half with no loss in occupant comfort. Through continued engagement with our projects, we are able to both save energy and build relationships with our clients, often resulting in new commissions.



Detail of  $\rm CO_2$  and temperature during Services



Temperature over one month with 80 degrees setback



TRANSFIGURATION OF THE LORD CHURCH Continued engagement VETERANS AFFAIRS REPLACEMENT MEDICAL CENTER Design for resilience

# RESILENCE VETERANS AFFAIRS HOSPITAL

Being rooted in New Orleans, and situated right in Hurricane Alley, Eskew+Dumez+Ripple is acutely aware of the importance that projects are resilient—able to withstand and bounce back quickly after natural and man-made disasters, and able to adapt to the changing needs of owners with a minimum of expense and waste.

While building codes attempt to anticipate natural disasters requiring that structures be designed to withstand, for example, a 100-year storm or earthquake, they often assume that all civil systems work perfectly. Instead, we ask questions like, "How can the building remain usable if the power is knocked out for a week or two?" Our internal Quality Assurance review process seeks to ensure that, for example, windows and other penetrations in the building envelope are detailed well, and are designed to stand up to harsh conditions now and long into the future.

Reconfiguring buildings to meet the changing needs of owners is also a major expense and a major source of construction waste. We want the building to meet the Owner's program at building opening, and be easy to adapt as needs change with a minimum of waste and cost. This idea is sometimes described as designing for "long life / loose fit."

In 2012, we are developing a resilience review as part of the EDR Quality Assurance process.





#### ESKEW--DUMEZ--RIPPLE STUDIO ENERGY & MATERIALS

During the summer of 2012, we conducted our first firm wide sustainability audit. Using the sub meter that we had installed during our recent expansion, we were able to track energy usage and calculate energy end use. Lighting and computers are our two largest users of electricity and we are discussing ways to decrease our overall footprint.

We also conducted a paper audit, looking at both office paper and large format plotting. We use the unit "letter equivalent" as a way to compare different paper sizes. During the audit we found that 55% of our paper use is office paper while 45% is large format. From 2009 to 2011, each employee used the equivalent of 1,500 letter-sized sheets of paper each month. Over the past three years, paper use per employee per month has held steady. We are looking at ways for paper use to begin to decrease.



Studio energy end use





# ESKEW--DUMEZ--RIPPLE STUDIO TRANSPORTATION

In 2012, bicycling magazine named New Orleans one of its top 50 most bicycle friendly cities. We encourage our employees to commute to work via bicycle and other alternative forms of transportation. During our sustainability audit, we conducted detailed surveys to find out how people commute to work and found that a third of our employees either walk or bike to work. The survey revealed more people would ride their bicycles to work if they did not need their cars to travel to meetings during the day.

We have since implemented two new policies to make this easier. We are setting up a pool of employee cars made available for signing out, and we are also setting up a firm account with a local taxi service to provide transportation when these cars are unavailable. Starting this year, we plan on applying for tax credits though the new federal bicycle commuter act and pass these saving on to employees who to bike to work.

Bike Paths





#### "WALKING THE WALK" SUSTAINABILITY AT HOME

Our commitment to sustainability goes beyond the buildings we design and the way we run our studio. We also encourage our employees to improve the building performance and lower the environmental impact of their own homes. Employees are invited to report their home's energy usage, and a monthly report allows participating employees to see how their home stack up against their peers. For employees with especially high performing houses, we create "Project Performance Profiles" to document performance and share knowledge with the studio and the community. This past year, two employees participated in a citywide open house for green homes.





Home performance profiles of EDR employees



# **DISTRIBUTING INFORMATION**

Home energy rankings, project performance profiles, and all forms of environmental information and research are published in The SubMeter, EDR's sustainability newsletter. This has allowed employees to be up-to-date on our building performance initiatives and has increased interest and awareness of sustainability issues firm wide.

Since our first issue we have used The SubMeter to teach employees about our new data logging equipment and what information can be obtained from them, how to calculate infiltration rates from carbon dioxide concentrations, and to discuss plans for building an in-studio shower and locker room for bicycle commuters.



#### THE TALK OF THE TOWN









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HOME & GARDEN

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The SubMeter, EDR's sustainability newsletter









# **EDUCATION**

We contribute to advancing the understanding of sustainable design and building performance among students through engagement at the high school and university level. With support from the firm:

- Staff members serve as mentors to area high school students in the design and construction fields through the ACE mentoring program
- Staff members serve as guest critics at universities regionally and nationally
- Staff members participate in Career Day events at the high school and university levels educating students on the growth opportunities in the profession
- Staff members teach courses in sustainable design and in building science & environmental controls



# ENGAGEMENT

Eskew+Dumez+Ripple plays an active role in promoting the understanding of what can make for better buildings in the communities in which we practice. We support staff time contributing to a number of professional organizations that work in this area, including

- US Green Building Council: One staff member serves as Vice Chair of the State of Louisiana Chapter of the USGBC
- American Institute of Architects: Several staff members serve on the AIA New Orleans Sustainable
  Design Committee, organizing public lectures and conferences
- Construction Specifiers Institute: Staff members work in the regional CSI organization and present to the group on topics such as green building rating systems.

Eskew+Dumez+Ripple also encourages and tracks (on a yearly basis) staff memberships to cultural and civic organizations in the region. It is our belief that this type of engagement enhances our ability to sustainability practice in our communities.



# EDR FELLOWSHIP

In 2012, we launched the EDR Fellowship Program. A broadly advertised talent search accepted applications from design students and recent graduates interested in conducting research within the setting of a design firm for a period of either 3-month or 1-year. While the area of focus will change from year to year, this year's class of two EDR Fellows will focus on the topic of building performance. While many firms run internships, providing students with the chance to gain practical experience in ongoing design projects, the EDR Fellowship allows for dedicated staff time toward advancing our more thorough understanding of practice without being subsumed into the day-to-day crunch of particular project deadlines.

The first EDR fellowships were awarded to Corey Squire and Cruz Crawford

Originally from Mineola, NY, Corey Squire pursued his undergraduate degree in environmental studies and economics at Oberlin College in Ohio before moving to New Orleans to earn his M Arch from Tulane University.

Cruz Crawford is originally from Houston, TX and has completed his B Arch degree at the University of Arizona in Tucson. He previously interned at the Aranda/Lasch studio in New York.





### NGARB GRANT EDUCATION & PROFESSIONAL RECIPROCITY

NCARB, the National Council of Architectural Registration Boards, holds an annual competition for grants to promote collaboration between the academy and industry. In late 2011, we developed a joint grant proposal with Tulane School of Architecture [TSA] to entitled "Field Studies for Healthy, High-Performance Buildings". This proposal requested funds to purchase measurement equipment and promised as its primary deliverable the development of a university course to train students in methods to measure and understand building performance and occupant comfort. Our application was one of six to be selected as NCARB Prize winners. The course being developed will actually serve as a teaching module within TSA's required building environmental controls course "Buildings, Climate, Comfort" being taught by an EDR staff member.

During the 2012 fall semester, Tulane architecture students are studying energy performance, comfort, and the interior environment of 16 buildings in New Orleans. The class of 64 students was broken up into groups of four with each group studying a different building over a two week period during the fall semester. The project will culminate with the students presenting their findings to the building owners and the community. So far, this grant has had an absolutely catalytic effect on the Tulane School of Architecture and Eskew+Dumez+Ripple.





# FALL 2012 New Orleans Field Study Sites



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