



# NRDC MIDWEST

SUSTAINABLE WORKPLACE PRACTICES IN CHICAGO



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# HISTORY

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Chicago in the 19th Century was a booming metropolis with extraordinary amounts of population and industry growth. As the city of Chicago grew, increasing amounts of industrial and residential waste began to accumulate. Businesses turned to dumping their leftovers in the River, as it was the easiest means of disposal. The River was essentially a landfill--a quick fix to the soaring population growth occurring at the time. Because of this pollution, many buildings, including the Civic Opera Building, built their spaces with their "backs to the river," and ignored the toxic wasteland that rested in their backyards. In fact, the pollution was so extreme that in 1900, the Chicago Sanitary Ship Canal was opened, permanently reversing the flow of the river in order to carry waste south of the city. It wasn't until 1972, when the Clean Water Act was enacted, that the condition of the River started improving.

The Civic Opera Building, located at 20 N. Wacker, was completed in 1929 and built by Samuel Insull. Insull, a highly successful business mogul, also founded Commonwealth Edison Co., the largest electric utility in Illinois. With its back to river and in grand art deco form, the Civic Opera Building is a perfect symbol of why it's necessary to protect our environment. The NRDC Midwest Program has a dedicated goal to not only restoring the Chicago River, but to providing safeguards for all of the Midwest, ensuring its health and solidifying it as a benchmark for environmental standards internationally.



*An early 20<sup>th</sup> Century photo of Civic Opera House.*



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# MISSION

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The Natural Resources Defense Council's purpose is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends.

We work to restore the integrity of the elements that sustain life -- air, land and water -- and to defend endangered natural places.

We seek to establish sustainability and good stewardship of the Earth as central ethical imperatives of human society. NRDC affirms the integral place of human beings in the environment.

We strive to protect nature in ways that advance the long-term welfare of present and future generations.

We work to foster the fundamental right of all people to have a voice in decisions that affect their environment. We seek to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities. Ultimately, NRDC strives to help create a new way of life for humankind, one that can be sustained indefinitely without fouling or depleting the resources that support all life on Earth.



*View of the Great Lakes from a NASA Satellite.*



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# VISION

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After retrofitting the first half of the space to meet rigorous sustainability goals, the team of NRDC, Architect of Record Studio Gang Architects, and Design Architect Nushu, LLC, worked to make this expansion space meet the same high expectations. The team made sure to highlight sustainability in design concepts, without compromising functionality or aesthetics. The open floor plan was specifically created in collaboration with NRDC to use fewer construction materials than traditional private office design. Under the project management and sustainability advising from Closed Loop Advisors and WMA Sustainability Solutions Group, and with general contracting services by Norcon Inc, the space meets aggressive environmental goals. As a result of the integrated team approach, NRDC's Chicago Office Expansion will be one of the first commercial projects in Chicago to be certified under the 3.0 version of the Living Building Challenge.

Everything from the ceiling to the floors, and all that's between, has been carefully selected in order to make sure that materials and resources place an emphasis on environmental stewardship. Through strategic research, design, and implementation, the Midwest office expansion upholds the identity of NRDC's original Chicago Office as a progressive space that defines a new standard for commercial rehab projects. The Chicago location continues to transcend the idea of a "green space" in commercial renovation sites to something that should be modeled for future planners.



*The expanded blueprints for the new NRDC Midwest Office.*





*Clockwise from left to right: A) View of 20 N. Wacker. B) Stairs leading to the Washington/Wells CTA stop. C) Local Divvy bike-rental commuters. D) A woman commutes to work by walking. E) View within the Midwest office looking West.*



# PLACE

- The open floor plan helped to greatly reduce construction materials compared to conventional offices, while providing an even distribution of light, natural views, and ventilation
- The office is within walking distance to CTA, Metra commuter trains, bus stops, the new Loop Link and the Divvy bike share program
- Secure bike storage is located within 200 yards of building
- 98.4% of construction materials were diverted from landfills
- The office overlooks the Chicago River, acting as a constant reminder of the reclamation and preservation of the Midwest Program's arduous and rewarding work

***Ongoing sustainability:*** Employees can bike to work or take advantage of the easily accessible public transportation instead of driving their own vehicles every day. This reduces emissions and lessens the Chicago office's carbon footprint.

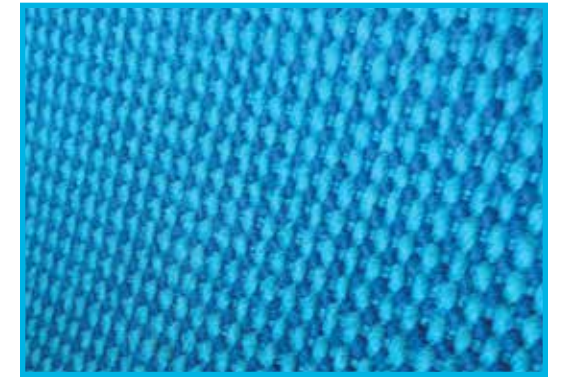


*Clockwise from left to right: A) Felt Wall. B) Sustainably-sourced furniture. C) Cork stool. D) Carpet made from recycled fibers. E) Ceiling tile made from FSC certified wood fibers.*

# MATERIALS

- New wood used in new construction is formaldehyde-free, VOC-free and certified by the Forest Stewardship Council (FSC)
- The countertop is made of a piece of salvaged granite, effectively reducing landfill use and providing cost savings.
- Nearly all of the furniture has Declare labels, proving that the products contain no dangerous Red List chemicals and are made by manufacturers working toward a fully transparent building industry
- Ceiling tiles are made from FSC certified wood fibers, emitting no VOCs while helping to absorb sound pollution
- All cabling has low smoke zero halogen jacketing, signifying that the wires and associated casings are PVC- and halogen-free
- All of the paint has VOC levels below the South Coast Air Quality Management District (SCAQMD) Rule 1168 for Adhesives and Sealants or the CARB 2007 Suggested Control Measure (SCM) for Architectural Coatings, meaning they do not emit dangerous chemicals that would otherwise pose health risks for tenants
- The team made a significant effort to eliminate hexavalent chromium, a chemical commonly found in the galvanizing process of steel, in the conduit, ductwork and the custom stainless steel exhaust fan

**Ongoing sustainability:** When replacing materials, employees will consider the same aspects looked at during construction such as making sure materials are Red List-free as well as locally sourced.



## *What is the Red List?*

If materials are Red List-free, they are free of toxic chemicals. Many common building materials contain chemicals that can have deleterious human and environmental effects. Some of these include PVC, formaldehyde and halogenated flame retardants. LBC operates under the precautionary principle: if there is any possibility that there might be an adverse human health effect, we have to assume it does.





*Clockwise from left to right: A) Light fixtures located in the kitchen. B) Natural light entering the office. C) An employee works on their Energy Star certified computer. D) A wind turbine farm in Wolcott, Indiana.*

# EFFICIENCY

- Electricity panels are programmed to automatically shut off electric flow to some of the outlets after work hours to conserve energy
- Windows border the entire space, allowing natural light to penetrate deep into the office, reducing the need for extra energy use
- Adjustable options for temperature regulation, such as desktop fans and operable windows, allow for less HVAC use
- Over 90% of all office electronics are Energy Star certified, exceeding government energy efficiency standards
- NRDC offset embodied CO2 emissions from this renovation by purchasing Verified Carbon Standard (VCS) credits and supporting the Capricorn Ridge Wind Project

**Ongoing sustainability:** Employees can take advantage of the natural light and only turn on lights when they are needed. The power kill element of the electric panels will also help prevent vampire loads and reduce electricity draw.



*Cable in the electrical closet is the backbone to the monitoring system at the NRDC Midwest Office.*

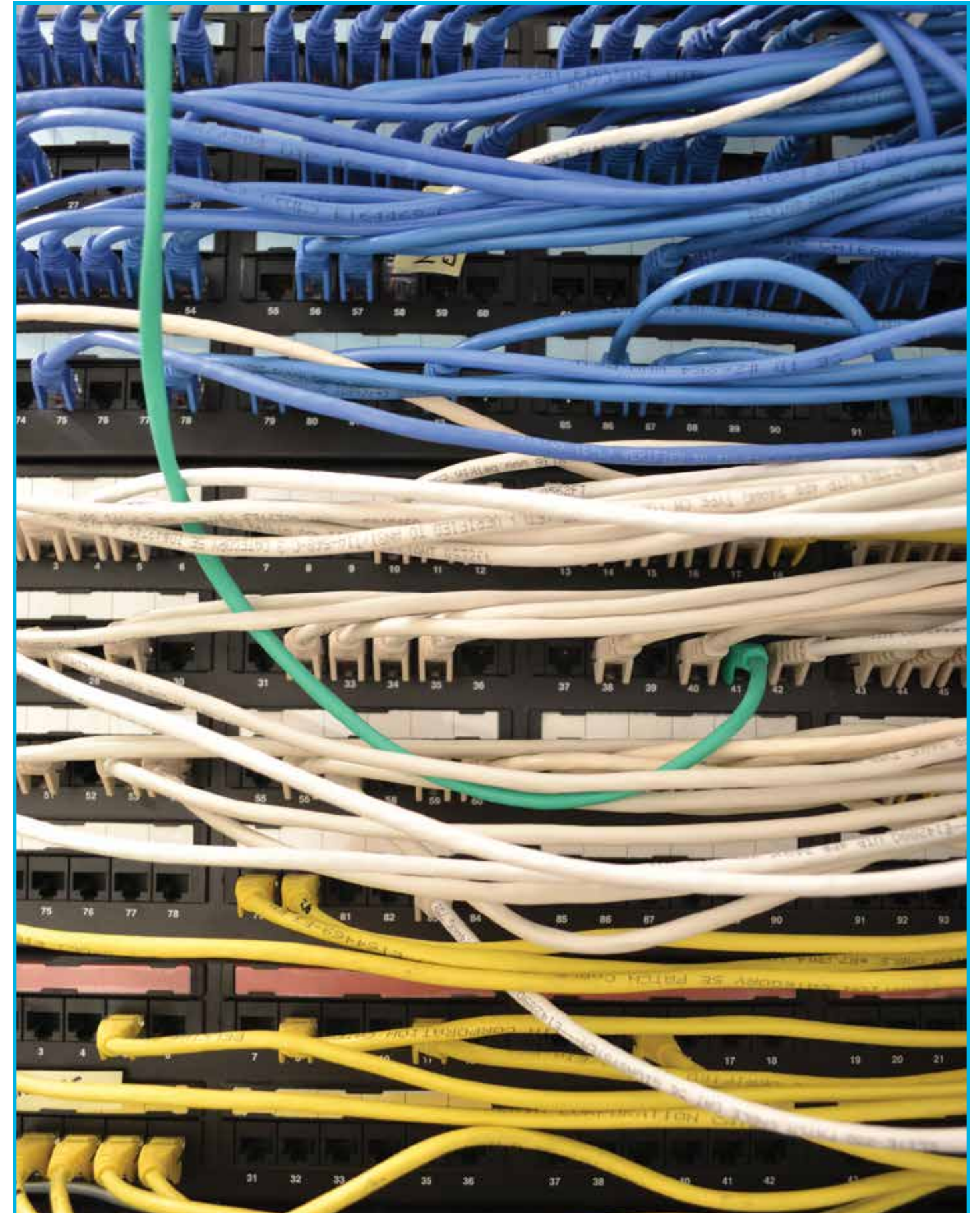
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# MONITORING

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- Noveda Smart Monitoring allows for real time water and energy usage and information is collected and stored in an online database, providing in-depth reports of energy and water use over periods of time
- Noveda data can help NRDC to realize inefficiencies in water and energy use, identify where to make adjustments, and help to reduce wasted resources
- An advanced lighting and dimming system automatically adjusts to the surrounding light conditions (sunny conditions will dim lights automatically to reduce unnecessary waste)
- After 8 minutes of inactivity, motion sensors installed in conference rooms shut lights off to save on energy usage, while lights in work areas are automatically turned on 50%
- Lighting system provides a 50% more efficient lighting density than baseline requires

***Ongoing sustainability:*** Based on data transparency, employees can work toward reducing the office's energy and water footprints.







*Clockwise from left to right: A) Kitchen table made from sustainably sourced wood. B) Repurposed crown molding used for wood paneling on walls. C) An example of the biophilia in the NRDC office.*

# BEAUTY & SPIRIT

- The office design was inspired by principles of biophilia including connection with nature, dynamic and diffuse light, biomorphic patterns & mystery
- Plants growing on rope structures on the walls and columns boost green space indoors and assist in absorbing air pollutants
- Modern furnishings are sourced from local companies, using either sustainable or recycled materials, and meeting GREENGUARD Certification or an equivalent certification
- Environmentally friendly paint, including whiteboard and chalkboard paint, has been applied to the walls as a fun, creative outlet for employees
- Locally sourced, 100% wool felt-covered panels line conference room walls and ceilings, helping to absorb sound

**Ongoing sustainability:** The beauty and spirit of the office can be shared with others. Visitors and occupants can be educated either through the guided tours or signs around the office that provide information for self-touring.



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# HEALTH

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- Accessible and operable windows allow occupants to ventilate the office and monitor fresh air levels on days that the outdoor air quality is at healthy levels
- Any wet applied products or other products that were likely to emit VOCs over the course of their lives were vetted to make sure they met certain standards below which they will not cause short or long term health effects for the construction workers when building the space or for tenants
- To prevent the accumulation of contaminants caused by construction activities, measures were taken such as pathway interruption, heating, ventilation and air conditioning protection, regular cleaning during construction, and proper planning of the construction schedule

**Ongoing sustainability:** Employees can use the operable windows and make sure cleaning products also comply with low VOC standards.



*Clockwise from top to bottom: A) An example of biophilia in the office, which helps with air quality. B) An example of how clean the site was during construction C) Operable windows help reduce the need for HVAC use, lowering carbon emissions*





# WASTE MANAGEMENT

- A filtered drinking water spout reduces the need for plastic water bottles, which often end up in landfills
- Construction waste management measures were taken to avoid sending any waste unnecessarily to the landfill
- Receptacles are provided for landfill and organic waste
- Paper, corrugated cardboard, glass, plastic and metal receptacles are available for recycling
- Batteries are collected to be appropriately disposed of

***Ongoing sustainability:*** Employees will make an effort to properly sort their waste and utilize the drinking water machine.

*Employees gather in the kitchen, an area where many waste management efforts exist.*



# SUSTAINABILITY HIGHLIGHTS



- 1.** Wood in millwork is formaldehyde-free, VOC free and certified by the Forest Stewardship Council (FSC)
- 2.** Salvaged granite countertop reuses a product for a new purpose
- 3.** FSC Ceiling tiles emit no VOCs while helping to absorb sound pollution
- 4.** Low smoke zero halogen cabling eliminates hazardous PVC and halogens from the space
- 5.** Custom exhaust fan was made to eliminate hexavalent chromium, a hazardous Red List chemical
- 6.** Accessible and operable windows allow occupants to ventilate the office on days that the outdoor air quality is at healthy levels
- 7.** Lutron lighting systems, set at 50% of their capacity, automatically dim to natural light entering the office
- 8.** Electricity panels automatically shut off electricity flow to some of the outlets after work hours to conserve energy
- 9.** Noveda Smart Monitoring provides real-time energy and water use data
- 10.** Workstations, office desks, and chairs all have Declare labels, proving they are meeting the Living Building Challenge requirements
- 11.** Over 90% of qualifying electronics in the office are Energy Star compliant
- 12.** Waste is sorted into compost, landfill and recycling for paper, corrugated cardboard, glass, plastic, metal and battery disposal.

\*3,4,6,7 and 11 can be found throughout the entire project.



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# ATTRIBUTION

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