

IDEA CENTER AT PLAYHOUSE SQUARE

Cleveland, Ohio

Owner Partner:

WVIZ/PBS and 90.3 WCPN ideastreamsm and the Playhouse Square Foundation

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URS

Design Lead Architects and Engineers, Idea Center Tenant Suite Adaptive Reuse for WVIZ/PBS and 90.3 WCPN ideastream Headquarters and Playhouse Square Foundation Arts Education Programs; and Sustainable Design Services and Historic Tax Credit Consultant, Idea Center

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IDEA CENTER AT PLAYHOUSE SQUARE Cleveland, Ohio

Breakthrough Collaboration and a New Model for Urban Reinvestment

Idea Center at Playhouse Square in Cleveland, Ohio is a breakthrough, interactive center for the arts, technology, education and ideas, and a 21st century success model for urban reinvestment through public - private partnership. The collaborative design vision for Idea Center leverages its highly visible, street front location on Euclid Avenue, the main corridor of Cleveland's commercial, retail, and entertainment district, to inject a new, dynamic vitality to the city's urban core.

In a partnership that is the first of its kind in the nation, **WVIZ/PBS and 90.3 WCPN ideastreamsm** and the **Playhouse Square Foundation** have renovated the National Register landmark building at 1375 Euclid Avenue in the heart of Cleveland's Playhouse Square district as Idea Center. The 1912 historic structure is transformed into a radically new kind of environment and a technology-based hub. It encompasses the 90,000 square foot Idea Center suite - an innovative, collaborative facility for ideastream and Playhouse Square Foundation's arts education programs, integrating digital multiple media and public broadcast communication with performing arts and arts education - and 124,000 square feet of leased office space for tenants with affinities to design, high-tech, education, and media uses.

The development of Idea Center marks the continued growth and evolution of Playhouse Square, one of the country's most highly successful cultural districts -- the largest complex of restored landmark theatres in America and the country's second largest performing arts center - nationally recognized for public and private investment in downtown revitalization with demonstrated economic impact.

Idea Center is also the result of a highly collaborative design, planning, and construction effort. As master planners working with Playhouse Square Foundation for over 25 years, **Westlake Reed Leskosky** of Cleveland, Ohio performed the initial feasibility analysis of the 1375 Euclid Avenue building, through extensive planning and multiple programming that spanned five years of study, and demonstrated to the owner-partners economies and operational efficiencies of collocation, shared space and building services.

URS are design lead architects and engineers for the restoration of the historic Idea Center building, located at 1375 Euclid Avenue. The scope of work was twofold: a complete restoration of the historic building structure and infrastructure systems as well as design for a contemporary approach to the storefront design and public lobby sequences within. URS provided architectural, interior design, mechanical, electrical, plumbing and structural engineering services for the restoration of the Idea Center building. This included design and technical assistance to the owner partnership for façade restorations and a lighting program created for the façade facing Playhouse Square.

As a major tenant in the Idea Center building, URS also designed their own Cleveland offices, situated on the upper two floors of Idea Center. URS continues to provide design services for other technology-based companies that are moving to Idea Center.

Westlake Reed Leskosky are design lead architects and engineers for the Idea Center tenant suite, integrating the digital, multiple media broadcast headquarters and permanent home for WVIZ/PBS and 90.3 WCPN ideastream and Playhouse Square Foundation arts education programs. Westlake Reed Leskosky provided programming, architectural, interior design, mechanical, electrical, plumbing and structural engineering services, and theatre technical services for the renovation and adaptive reuse of the first two floors and lower level of the Idea Center building, including the exterior addition *Westfield Insurance Studio Theatre*. Westlake Reed Leskosky provided historic tax credit consulting services to the owner partnership for the entire structure, including consultation regarding window replacement and storefront modifications to meet tax credit requirements, as well as façade easements and lost development rights credits. Westlake Reed Leskosky continues to provide design services for other media and high-tech companies that are moving to Idea Center to benefit from collocation with ideastream and Playhouse Square.

Westlake Reed Leskosky also provided sustainable design services for the environmentally responsible redevelopment of Idea Center and was instrumental in achieving LEED-CI (Leadership in Energy and Environmental Design – Commercial Interiors) Silver certification – one of the first projects in Ohio to receive this designation. This innovative project is part of the US Green Building Council LEED-CI (commercial interiors) pilot program introducing green building practices to the commercial lease space real estate marketplace.

The Systems Group, LLC (TSG) of Hoboken, NJ is the broadcast and A/V systems design and equipment integration specialist for the Idea Center tenant suite. Providing systems design and architectural infrastructure planning and consulting support as well as turnkey broadcast , A/V, and distance learning system implementation, TSG joined the project team in 2004 to ensure that the needs of public stations WVIZ/PBS (TV) and 90.3 WCPN (FM radio) were integrated into the facility workflow planning and infrastructure design.

Turner Construction of Cleveland, Ohio served as construction manager for Idea Center, including the restoration of the historic 1375 Euclid Avenue building as well as the Idea Center tenant suite. The national construction leader's Cleveland offices are located in Playhouse Square Foundation's Hanna Building in the cultural district.

"The Idea Center, in the heart of Playhouse Square, is a wonderful success story for the city of Cleveland; one that mirrors the economic life of the city itself. The Idea Center building is essentially a collaborative shell within which the organizations, and the ones that are yet to come, can all find a home in the most creative part of town," notes Christopher Diehl, AIA, Vice President and Director of Design of URS.

"Over thirty years ago, Playhouse Square created an important precedent for urban revitalization through its vision to reclaim an entire arts district – a pioneering concept which has spawned countless cultural projects across the nation," says Paul E. Westlake, Jr., FAIA, principal in charge and a lead designer of Westlake Reed Leskosky. "Now, that legacy of innovation and urban reinvestment continues with the partnership of ideastream and Playhouse Square Foundation at Idea Center. The fabric that is woven here will be the cloth of community culture."

"Idea Center is a landmark realization of a shared media environment that will allow each contributing entity to benefit from a wide array of performance venues, production facilities, connectivity, and audience melding at a new level that no single entity would typically have," remarks Scott G. Griffin, principal in charge and vice president engineering for The Systems Group. "Simulcasting live, interactive audience events with a local, state, and national reach on digital TV, HD radio, web outlets, and multiple format recorded media – all on the push of a button – is something dreamed of by many, but realized by few."

Idea Center Building Restoration ***URS as Design Lead, Architects and Engineers***

URS of Cleveland, Ohio began working on Idea Center in 2001 as lead design architects and engineers of the Idea Center building renovation, restoring the original beauty of the landmark in the context of the Playhouse Square district, and bringing it up to date to support its transformation as a center for communication, arts education and offices.

The historic landmark 1375 Euclid Avenue structure was originally designed in 1912 by one of Cleveland's most prestigious architectural firms, Walker & Weeks, as a large retail and warehouse building. The seven-story building has a total of 246,000 gross square feet. The building's south wing was built on what was formerly a residential site for the retail home furnishings store Kinney & Levan. A north addition was constructed in 1932. In 1936, Stouffer's purchased the building for corporate offices. Other notable tenants in the building's history have included the Cleveland Public Library in the 1910s, and the Intown Club from 1930s to present. In the 1950s the building also housed the studios of WJW and is where disc jockey Alan Freed first uttered the words "rock and roll" on the radio – prophetically foreshadowing the linking of a revitalized Euclid Avenue corridor with other cultural momentum in the city including the renaming of 9th Street as "Rock'n'Roll Boulevard" to celebrate the synergy with another cultural venue, the Rock'n'Roll Hall of Fame and Museum. In 2000, the building at 1375 Euclid Avenue was gifted to the Playhouse Square Foundation.

Over time, the six-story terra cotta façade on Euclid Avenue had become riddled with patches; the punched windows were filled with dark, brooding glass and frames, and the storefront had been reworked so many times that it barely reflected the original and well-proportioned composition. The large façades of industrial-scaled window openings on the building's side and rear had been sheathed in a vertical corrugated metal siding; the window openings reduced to a fifth of their original size.

Following the commitment to renovate the structure in 2001, Playhouse Square Foundation was joined in ownership of the building the following year by WVIZ/PBS and 90.3 WCPN ideastreamSM respectively, local affiliates of Public Broadcasting Service (PBS) and National Public Radio (NPR). Shortly thereafter, the notion for the "Idea Center" was born – a center focusing on arts, technology, education and ideas. It would house the headquarters of ideastream, spaces for Playhouse Square Foundation's arts education programs, and it would be an office building that seeks to attract design and technology firms.

Respecting Historic Character while Creating a Simple, Clean Storefront "Frame" to Activity

The overall approach to the design restoration of the Idea Center building was simple in concept: respect the intent of the original structure and create an elegant and beautifully proportioned frame through which the exciting programming within could be seen and enjoyed. The restoration of the building façades and storefronts designed by URS exemplifies this approach. In addition to the restoration of the terra cotta Euclid Avenue façade, new windows that respect the form, color, and transparency of the original versions were introduced. The storefronts act as clean and open frames that perform as proscenias into two major program spaces of the Idea Center tenant suite designed by Westlake Reed Leskosky. Above the storefronts, an electronic ticker scrolls from left to right, broadcasting news content from ideastream.

Christopher Diehl, AIA, Vice President and Director of Design of URS, emphasizes the importance of the building's pivotal role in opening up the activity within to the city. "While understated and not the most glamorous building in the square, the 1912 structure is really beautifully proportioned, and commands a key position in the city, and is a focal point of urban vistas. We treated it with respect, working closely with the State Historic Preservation Office, cleaned it and returned it to a pristine state. By restoring the storefront and what was opaque and transparent, we created a simple, clean opening to all of the wonderful activity within. The building serves as a frame, with the pedestrian and vehicular audience looking in."

Exterior lighting on the Euclid Avenue façade is serene and elegant, bathing the building in a range from soft lavender to white, a modern contrast to the bright, theatrical lights of the marquees of the neighboring Playhouse Square theatres.

Celebrating the Entry Sequence

The openness to activity and the outside/inside relationships from the street front are carried through the public entry sequences. The main lobby accessed from Euclid Avenue is designed to carry the street into the building, provide visitors with continuous views of the flanking program spaces, and allow for access to the building as a whole. Rather than introduce an entrance canopy, which would have been antithetical to the concept of a minimalist approach to the storefront façade, the collaborative effort of URS and Westlake Reed Leskosky designed the entry to be an inverted “canopy” experience. Building visitors and occupants enter through double doors into a glass enclosed vestibule revealing as much of the building structure and activity as possible. This vestibule leads to the historic lobby noted for its ornamental staircase.

A historic mezzanine, with detailed balustrade, has been restored and fitted with a new glass floor. Originally intended to display bedroom and dining room suites, as part of the Kinney & Levan furniture store, it now houses the building’s fire command center and provide views into the spaces on either side.

“The existing mezzanine landing was a dark and oppressive form overhead as one entered the lobby, and it was closed to the west. We felt it was critical to the entry and journey experience to remove the brooding heaviness overhead, and open up the landing on both sides. The result is a space that feels much lighter and one that allows the activity to be viewed on all sides. We have designed it as an inserted object, with a clear distinction of the modern wall and envelope from the original fabric,” describes URS architect Diehl.

The beaux-arts stair that runs from the lobby to the sixth floor has been sheathed in a stainless steel wire cloth that relates to materials visible in the Idea Center tenant suite. Continuing the effect of lighting from the exterior façade, the serene view of color playing on a tall and translucent plastic scrim ends the vista from the main entry, radiating as a colored shaft of light visible from the street. Housing the main elevator bank, plastic panels have been mounted to a steel frame, then back-lit with LED from above and below. When the elevator cab arrives, the surrounding walls go to green to announce its arrival in a playful yet elegant gesture.

The façades that face north on Dodge Court and to the west have been restored to the original exposed concrete frame and large industrial window openings that can best be seen in an original Walker & Weeks rendering of 1912. Working closely with Westlake Reed Leskosky to respond to the requirements of the historic tax credit, URS designed the new windows to reflect the size, proportion, and geometry of the original versions. The resulting effect on the interior spaces is dramatic, flooding internal spaces with the ample daylight admitted from these windows.

**Idea Center Tenant Suite Adaptive Reuse
WVIZ/PBS and 90.3 WCPN ideastreamsm Headquarters and Playhouse Square Foundation
Arts Education Programs
Westlake Reed Leskosky as Design Lead Architects and Engineers**

Westlake Reed Leskosky of Cleveland, OH, Washington, DC, and Phoenix, AZ, are design lead architects and engineers for the Idea Center tenant suite, integrating the new, digital, multiple media broadcast headquarters and permanent home for WVIZ/PBS and 90.3 WCPN ideastream, including its distance learning and educational technology training facilities, and Playhouse Square Foundation arts education programs. The Idea Center tenant suite also encompasses the exterior addition and insertion of the shared, 300-seat *Westfield Insurance Studio Theatre*, designed and engineered by Westlake Reed Leskosky, and one of the largest and most versatile production studios in northeast Ohio.

The design vision for the tenant suite physically embodies the partnership of the compatible leadership of public service multiple media broadcast and performing arts. It captures the efficiencies of shared resources, spaces and technology, resulting in reduced construction capital and operating costs. The design concept fosters connectivity and interaction, and leverages the highly visible, street front location of Idea Center on the main corridor of the city's commercial, retail, and entertainment district to bring a new, dynamic vitality to Cleveland's urban core.

The integration of the programming of Playhouse Square arts education and the physical facilities of ideastream involves the adaptive reuse of three floors of the historic landmark at 1375 Euclid Avenue, originally designed by the noted Cleveland architectural firm Walker & Weeks in 1912, and restored by URS as the Idea Center building. The tenant suite occupies approximately 90,000 square feet, of which 47,000 square feet is used for public service, educational programming and performances. The balance of the building includes 124,000 square feet of leased office space for tenants with affinities to design, high -tech, education, and media uses.

Partnership and Collocation of Non-Profit Organizations with Related Missions and Compatible, State-of-the-Art Uses

The partnership and physical integration of the non-profit organizations of ideastream and Playhouse Square Foundation's arts education programs in Idea Center maximizes the community's resources and increases avenues for education and the arts while allowing each organization to pursue their distinct but related missions, and benefit from the synergies of collocation that would not be possible in separate facilities.

In 2000, the building at 1375 Euclid Avenue was gifted to the Playhouse Square Foundation. Its redevelopment as Idea Center follows the Foundation's real estate strategy of economic reinvestment, partnerships with affinities of uses, and stewardship in its cultural district and larger community. In 2002, ideastream was seeking a new home for its combined media resources; concurrently, Playhouse Square Foundation was exploring the renovation of the 1375 Euclid Avenue structure as a home for its arts education program and services. The identification of mutual interests and affinities offered the opportunity for the organizations to form a partnership to renovate the building together.

Through its ongoing relationship with Playhouse Square as master planners, Westlake Reed Leskosky was asked to perform initial feasibility analysis of the 1375 Euclid Avenue building – extensive planning and multiple physical programming spanning five years of study. *This feasibility analysis demonstrated to the partnership the economies of collocation, including sharing commonly programmed and designed spaces and other building services, which reduced the project size from 120,000 square feet to 90,000 square feet and translated to significant construction cost savings.* The Idea Center project has resulted in a combined savings in excess of \$7 million to the partners as well as the community.

Tom Einhouse, Playhouse Square Foundation's project manager for Idea Center, credits the solution of capturing economies through collocation. "The original idea began with a piece of real estate that was strategically important to Playhouse Square, and would be the arts and education center. The starting point was that ideastream would have their space and we'd have ours, and we would each have our own program and budget," Einhouse says.

“Paul Westlake of the architectural firm Westlake Reed Leskosky drew plans for the original programs. But then, we looked at ways with Paul to combine our programs and collaborate in other ways to save area and costs. This became the solution,” Einhouse notes.

The project was structured to take advantage of federal Historic Rehabilitation Tax Credits, providing significant equity to the project. Westlake Reed Leskosky provided historic tax credit consulting services to the owner partnership for the entire structure, including recommendations for appropriate window replacement and storefront modifications to meet requirements, as well as creating documentation for façade easements and lost development rights. This initiative involved consultation with the Cleveland Restoration Society and Cleveland Landmarks Commission, and significant collaboration with the State Historic Preservation Office, and the National Park Service under the U.S. Department of the Interior.

Kathryn P. Jensen, Chief Operating Officer of ideastream focuses on the vision for Idea Center. “Our move to Idea Center takes advantage of the synergies that we can form with the community as well as Playhouse Square. We are in the business of knowledge and education. The new facilities, technology, and collaborations will have a tremendous impact and allow us to expand our reach into the community.”

Colleen Porter, Director of Arts Education for Playhouse Square, notes that the creation of Idea Center is a logical marriage of performing arts, education and outreach, with public service multiple media. “The design of the partnership and the building enhances the work of each organization. By placing the programs in close proximity, both entities benefit from the synergies and efficiencies.”

“Arts education at Playhouse Square and the education services of ideastream are all about public engagement. Idea Center allows us to continue to build programs and audiences, enhancing the impact of Playhouse Square’s program content through its partnership with ideastream. Together we reach increased audiences and the public.”

Playhouse Square’s arts education is estimated to more than double its current audience, and increase to reaching 200,000 children, families and subscribers annually by 2007. ideastream will expand teacher training programs and its leading-edge distance learning programs in addition to augmenting programs with the new digital technology capabilities at the Idea Center suite. Through associations with school districts and private education organizations, ideastream education services reaches hundreds of educators in a typical school year, servicing approximately 500,000 students throughout Northeast Ohio, and beyond.

Contemporary and Flexible Facilities Promoting Interaction, Openness and Vitality

The architectural concept for the Idea Center tenant suite inserts a contemporary and highly flexible design into the context of the existing building. Openness and transparency break down traditional barriers among media and foster new connections, creativity, and collaborations. Westlake Reed Leskosky’s design creates a fluid container that serves as an interactive and accessible armature for multiple media that engages the public and community. The visual openness and large storefront windows of the Idea Center building, renovated by URS as frames on the Euclid Avenue façade, take advantage of the activity of nearby Playhouse Square and its location on the city’s major commercial and retail corridor to add vitality to the neighborhood at large. One of the primary broadcast studios of ideastream is positioned in the west storefront, while a dance studio for Playhouse Square is located in the east storefront. Thus, the architectural programming of the suite makes use of traditional retail spaces to present the “mission” and “function” of these institutions – and activating the urban realm.

The suite exposes its programmatic components, and allows the multilevel activities and movement of its space to be readily visible at street level. Activities on the three floors are connected physically and visually by deep wells and stairways from large openings cut into the building, encouraging interaction. A light court is notched in the inner areas of the deep, 450-foot long building. Materials such as steel and glass express the loft-like and industrial character of backstage space. Interior glass partitions allow visual access to activity as well as daylight to pass through the long building. Scaffolding, overhead trays of multicolored cables, electronics, monitors, sound and light systems are revealed to further reinforce the dynamic and technologically advanced nature of the programs.

Visitors as well as passersby on the street immediately experience the vitality and excitement of being part of a live, “backstage” studio environment.

This character is conveyed in the design through exposing the massive columns and concrete floors of the original structure and exposing much of the technological infrastructure, juxtaposing old and new elements. The integration of live performance and broadcast production and interactive multiple media systems with working classrooms and studios creates an atmosphere of dynamic vitality throughout the entire facility, made transparent through the open plan and ample use of glass in the interior as well as from the street front.

“The Idea Center suite serves current and emerging technologies, but also future technologies that we cannot even anticipate. Our design breaks down the barriers between media to become as open and flexible as possible. The facility is conceived as a fluid container, highly interactive, and visually open – an armature for media that engages the public and community,” describes architect Ronald A. Reed, FAIA, IIDA, principal and a lead designer at Westlake Reed Leskosky.

Jason Adolff, AIA, associate principal of Westlake Reed Leskosky and director of the firm’s Washington DC studio, comments, “Every space in the interior of the Idea Center tenant suite is highly visible and very active, around the clock. The design emphasizes high performance and flexibility. We have captured maximum ‘RPMs’ out of every area in the suite for production and presentation. Working with the users, we broke down traditional planning relationships and created new ones, reacting to the existing structure and its idiosyncrasies as well as the emerging needs of the combined institutions. As people in the building begin to work and create and learn in the spaces, they will discover even more new ways to use it. The profound organizational transformation of this client is evidenced in the architecture and planning of the facility.”

Kathryn Jensen reflects on ideastream’s shift to a radically new way of working. “We are bringing people together from three separate facilities that represented where they were before ideastream was formed, and relocating them to a totally new kind of space that embodies what our company was formed to do. We are making content transparent to the community in a variety of media. And we are partnering with Playhouse Square in the mix.”

Integration of Spaces for Presentation, Creation, Education and Technology

The plan locates spaces for presentation on the Euclid Avenue frontage, and work areas for creation at the other end of the 450’ deep, block-long building. These areas are connected by circulation and gathering areas and technology integrated throughout the facility. Representing the coming together of public broadcast and performing arts, two active studios are located in the glass storefront areas visible to the Euclid Avenue streetscape: the multiple media based *Kelvin & Eleanor Smith Foundation & The Kent H. Smith Charitable Trust Studio*, and the fully appointed *George Gund Foundation Dance Studio* for rehearsals and classes. A glass partition in the *Smith Studio* functions as an oversized, mechanically-operated double hung window, allowing the space to be closed for production or opened to the public.

These two studios flank the main entrance from Euclid Avenue. A by-pass corridor separates public and internal circulation to manage traffic and flow through the building, ranging from celebrities to large groups of school children. Like a town square, the *Jane & Jon Outcalt Lobby* serves as the “command center” for Idea Center — an open gathering area for reception, stage direction functions, and concierge customer and Internet services. Transparent internal glass walls allow the activity of the studios to be viewed as visitors traverse the *Outcalt Lobby*. Large open lobbies on upper and lower floors promote visitor orientation and navigation through the facility. These lobbies are connected by an internal monumental stair, composed of stainless steel and woven wire ‘cloth’ railing systems. A viewing space is created as a mezzanine level (*The Stouffer Mezzanine Landing, gift of Lois and Tom Stauffer*) on the internal stairwell, providing a vertical connection and visibility to spaces below.

As a key feature of Idea Center, the 300-seat *Westfield Studio Theatre* is designed and engineered by Westlake Reed Leskosky as a highly flexible “black box” space with state-of-the-art performance and television broadcast capabilities.

Designed as new construction suspended over an existing loading dock and service alley, this unique studio is one of the largest production studios in northeast Ohio. The *Westfield Studio Theatre* features collapsible and portable seating systems, specialized floor construction suitable for television production and presentation theater, and dual lighting systems for both theatre and television production instruments. Balcony-like seating above the main black box serves as “skyboxes” for viewing. Accessible by any of three lobby areas, the *Westfield Studio Theatre* and all of its support can be isolated.

As the most technically integrated space in the facility, the *Westfield Studio Theatre* provides the state-of-the-art facilities and equipment for collaborative productions involving theatre and television, and extends the depth of programming presented by ideastream and Playhouse Square Foundation.

Ms. Jensen of ideastream points to the *Westfield Studio Theatre* as an example of the efficiencies of shared space. “Playhouse Square needed a theater. ideastream needed a media studio. Both organizations have an educational mission. By integrating the two purposes in one studio, we saved what would have separately cost us \$7 million.”

“But designing one studio theater that met both requirements was no small challenge. It meant the floor had to be invented to be resilient enough for dancers but stable enough for television equipment. The lighting controls had to be unified in a way to adjust for higher theatrical lighting and lower television lighting. The designers pushed the envelope.”

The lower level features work areas and spaces for creation including the *Education Center*, classrooms, distance learning suites and large open interactive activity rooms. Using the integrated broadcast and technical plant in the facility, teachers and students can be brought together through technology into a single classroom ‘environment’ from many sites around the world. The *Dodge Court Studios* are the primary radio studios and control rooms. ideastream offices are designed to inspire collaboration among production staff and administrative personnel. The *Eva L. & Joseph M. Bruening Foundation PB&J Lounge*, adjacent to the Education Center, is the gathering place for the hundreds of students and teachers visiting Idea Center, designed with bright colors and durable materials conducive to lunches and breakout sessions.

Technology is celebrated and threaded throughout the Idea Center tenant suite, providing interconnectivity between five multiple media broadcast studios, five control rooms, multiple edit suites as well as lobby and staff areas on each floor. Two strategic and centralized pathways within the tenant suite, *Digital Highways*, provide for a consolidated and directed route for the miles of cabling that serve these technical spaces. The pathways coincide with the major circulation paths within the tenant suite, and are designed to expose both the technical infrastructure as well as the activity within the studios, reinforcing the design theme of visibility, transparency and vitality. *Digital Highways* are primary corridors exposing technology and connecting spaces.

The first floor *Nancy & Rik Kohn Digital Highway* is a broad, faceted extension of the Euclid Avenue level lobby, exposing the *Smith Studio* and *KeyBank Studio*, associated control rooms, and the intense overhead cable tray infrastructure. On the lower level, the *Digital Highway* is the primary north-south corridor, exposing *Studio 4* and *Studio 5*, associated control rooms, and the *Technical Center*. The *Technical Center* is the consolidated technology “brains” of the facility, integrating the electronic and communications systems and allowing the multiple users to share common infrastructure, resulting in greater facility efficiencies.

Each space, including all studios, work areas, lobbies and classrooms is equipped with broadcast equipment and connections to facilitate ‘capturing’ all of the activity within the building, either to be streamed to web sites, projected onto lobby walls, or taped for use in productions for television or radio. This constant display of live building activity is also carried to the street with large scale projection systems in the Euclid Avenue storefronts. Future plans include integration of broadcast infrastructure into the historic theatres in the Playhouse Square complex to further expand the collaborative opportunities shared by these organizations.

Integrated Engineering Meeting the Complex Challenges of Multiple Technology Uses

The tenant suite for the collocation of ideastream and Playhouse Square’s arts education programs is a model for integrated engineering and a prototype that addresses unprecedented, multiple uses of performing arts, television broadcast, radio broadcast and educational broadcast, each with highly complex and sensitive equipment and technology needs, including reliable, redundant and uninterrupted power for emergency broadcast.

Matthew Murphy, PE, associate and mechanical engineer at Westlake Reed Leskosky, also notes the synergies and efficiencies gained in combining the programs of each organization. “Multiple, high tech tenants in a building will often want to maintain separate systems, and the result is redundancy and waste in terms of power distribution and heating and cooling infrastructure and basic systems and components. One of the unique things about Idea Center is that there is a central plant and its systems and infrastructure are shared.

In addition to the architectural synergies, these engineering synergies lead to lower operating costs and higher efficiency,” Murphy observes.

New power distribution, communications, lighting, theatre lighting and audio, mechanical and structural systems for the tenant suite needed to be inserted into the existing, deep building with unique space constraints, as well as integrated into a highly flexible and open architectural design concept. The engineering systems needed to meet high performance demands of the sophisticated communication and technology uses, while also complying with the LEED for Commercial Interiors Green Building Rating System, and withstanding stringent value engineering evaluations for optimal payback.

Westlake Reed Leskosky architects and engineers worked closely with ideastream, Playhouse Square Foundation, and The Systems Group to integrate engineering requirements in the tenant fit out, and with URS as design lead architects and engineers for the Idea Center building.

Located in the lower level, the *Technical Center* is the consolidated technology “brains” of the facility, integrating the electronic and communications systems and allowing the multiple users to share common infrastructure, resulting in greater facility efficiencies.

Westlake Reed Leskosky’s electrical engineering design addresses the complex requirements of power distribution, power quality, grounding Electromagnetic Interference (EMI) mitigation, wire management and performance/broadcast lighting for the multiple uses of theatrical design, broadcast television design and controls, radio broadcast and technology center and studio design and controls.

All areas in the tenant suite are designed to support multiple media functions and applications for radio, television, Internet, and education. The multiuse *Westfield Studio Theatre*, the most sophisticated of these environments, exemplifies the complexity of systems integration in the project. The *Westfield Studio Theatre* requires parallel engineering infrastructures for theatrical use and television broadcast use – systems that are not inherently compatible. Examples include dual motor operated lighting grids and two distinct audio systems.

Because of this dual programming, the design requires separate dimming racks and theatrical lighting equipment. Designed as an isolated environment for both acoustical and vibration performance, levels in the theater are designed for noise criteria NC-15, as compared to typical office environments of NC 40-45. Noise reduction is achieved by isolating motorized equipment and transformers, situating cooling equipment as remotely as possible, lining distribution ductwork with acoustical material, and designing ductwork distribution pathways with larger than normal sections and circuitous routes to allow for noise dissipation and lower velocity airflow. These design principles have been applied to all of the technical spaces in the tenant facility.

Reliable, redundant and quality power distribution includes energy efficient distribution systems, uninterrupted power supply systems (UPS), grounding and standby generator systems. The coexistence of both high frequency and low voltage communications systems required EMI shielding to protect sensitive high frequency communication cables from the magnetic fields emitted from distribution systems. Comprised of thick, welded steel plates in walls and ceilings (around these sensitive areas), EMI shielding involved stringent design criteria below 5 milligauss emissions, or half normal standards.

Harmonic mitigating transformers are used to ensure power quality and to meet power demand, especially important given a heavy electronic environment and sensitive equipment. Grounding and transient voltage surge protection objectives, important for the sensitive technology broadcast equipment, are enhanced through an isolated ground network and single reference grid (SRG). Quality redundant power design includes the standby 750kw generator set as well as harmonic mitigating transformers.

Wire management also addresses the criteria of heavy, multimedia electronic loads from the multiple uses and EMI shielding. Cables flow from the *Technical Center* to each individual end use, whether studio, control room, or roof satellite location. The cable infrastructure and routing provisions are accomplished with cable trays in both ceiling and floors. Raised floors on part of the lower level and part of the first floor provide additional cabling-raceway provisions for heavy cabling requirements in studios and open office areas, and for future expansion. An under floor copper single reference grid is used for grounding to mitigate transient voltages on the high frequency communication cables.

As a public service provider of emergency broadcast communications for northeast Ohio, ideastream is required to have reliable, redundant emergency power provisions to stay on the air in the event of an emergency.

Following the major blackout of the Northeast in 2003, the fuel source demands for the facility's standby generator operations were redesigned to exceed requirements for utility reliability with a generator and refillable 1500 gallon concrete encased, two (2) hour rated diesel fuel tank that would provide for continuous operations during a power crisis.

Lighting design for the tenant suite addresses the varied needs of live theatrical performance, studio broadcasting, teleconferencing, and general office environment while meeting stringent LEED energy power allowance criteria. An incandescent environment with flexible and dimmable features supports theatrical/broadcast performances. General fluorescent technology and controls are used in areas not requiring theatre and broadcast operations. Special lighting serves teleconferencing in the educational spaces. New high output fluorescent T5 HO lamp technology is used for the large, open, 17' high spaces. With close to 75% of the space open ceiling, these streamlined luminaries with direct/indirect light distribution, high frequency electronic ballasts and fluorescent T5 HO lamps result in significant savings of fewer fixtures needed and achieve LEED criteria. In addition, lighting design is integrated with other efficient features, including optimal use of natural light and use of reflective surfaces for enhanced performance of indirect lighting sources. Emergency lighting is powered by the emergency generator and exit signs have long life LED lamp technology. Occupancy sensor controls further contribute to energy conservation.

Communications systems include fire alarm, telephone, local area network, sound systems, audio systems, and broadcast systems.

Requirements for the mechanical systems were far more complex than typical office tenant fit-out. City chilled water and steam sources provide the basic heating and cooling utilities for the building. Westlake Reed Leskosky had worked with Playhouse Square Foundation to conceive an energy plant for their real estate holdings, which resulted in significant operational and utility savings and served as a prelude to providing chilled water and steam to Idea Center.

Coordinating closely with engineers at URS, Westlake Reed Leskosky installed air handlers and distribution systems on each of the three floors of the tenant suite facilities. Each floor has a fan room, and air handlers are split to supply air to the north and south zones of the building, taking advantage of the structure's great length. Site constraints required special considerations for outside air intake. Carbon filtration within the air handling equipment reduced the amount of outside air required for ventilation, resulting in energy savings.

Two computer room air conditioning units are housed in the *Technical Center*. Reliability requirements, including the emergency broadcast operations of ideastream are met by specifying redundant systems powered by the emergency generator, in addition to the chilled water equipment running on normal power.

An inert gas fire suppression system is installed in the *Technical Center* to protect the sensitive technical core and its equipment, especially needed due to the density of this equipment and the need for reliability and uninterrupted performance.

Westlake Reed Leskosky structural engineers addressed the challenges of inserting the 300-seat *Westfield Studio Theatre*, stairwells, and scenery lift into the existing building while maintaining the load path from the existing floor plate and columns to foundations in the 1912 historic concrete structure. Cantilevering the new *Westfield Studio Theatre* in a notch of existing exterior space over the building's loading dock avoided the need to remove first and second floor interior columns and floor slabs, and redirect load transfer to the foundations. In order to achieve this, full depth, continuous trusses in the north and south walls carry the longitudinal stage load. Three transfer trusses in the roof support the intermediary load. The entire *Westfield Studio Theatre* is suspended from the existing structure, with minimal new columns below, in order to maintain vehicle circulation under the studio.

A specialized floor system was designed to meet several technical requirements. Structural construction includes a composite deck of structural steel and metal deck with concrete. A vibration analysis was undertaken to separate deflection and vibration frequencies of dance performance from flooring in other spaces. The finished floor system has some inherent resiliency, while providing for the flatness and vibration tolerances required for studio camera work.

The installation of the balcony level area and pedestrian walkthrough along the east wall of the *Westfield Studio Theatre* entailed cutting out inverted concrete beams and required new, steel lintel beams to transfer edge of slab loads to the existing concrete columns.

Foundation work for the *Westfield Studio Theatre* was a challenge due to the poor soils and tight site constraints of the building. Various pile systems were considered for the foundation loads involved. Driven piles were deemed impracticable due to the danger of vibration induced damage the installation procedure might cause. Conventional drilled shaft piles were also ruled out due to the limited site access and clearance required adjacent to the existing foundation versus drilling equipment requirements. The drilled replacement pile finally selected was a micropile, a small-diameter (typically less than 12-inch diameter), drilled and grouted replacement pile that is typically reinforced. Thirty micropiles were utilized for the *Westfield Studio Theatre* foundations, approximately 8-inches in diameter, reinforced and rated for a 100,000 pound capacity. This was one of the first engineering projects in the area to use this pile technology.

To achieve the design concept of interaction and openness, stairwells and atria were inserted into the building to serve the tenant suite. Due to the slab type, known as a two-way reinforced concrete slab, which has the main support reinforcing steel running in both directions, these openings had to be reinforced to transfer edge of slab forces to the main building columns. This support was provided by new structural steel beams being placed directly below the slab edge and bolted into the columns. The beams were then wrapped with gypsum board to provide finished appearance. Other new components include a large scenery lift, also requiring structural modification that can accommodate heavy loads such as a car.

As a part of a study to apply for Lost Development Rights tax credits, a significant funding source for the entire Idea Center project, an engineering feasibility study was also developed to understand the feasibility of modifying the structure for future vertical expansion of the building for possible residential use.

Sustainable Design Strategies:

Responsible Stewardship and an Innovative Pilot Program in LEED-CI

Westlake Reed Leskosky provided sustainable design services for the environmentally responsible redevelopment of Idea Center and was instrumental in achieving LEED-CI (Leadership in Energy and Environmental Design – Commercial Interiors) Silver certification – one of the first projects in Ohio to receive this designation. The firm worked with ideastream and Playhouse Square Foundation to assess outcomes for building performance, efficiency, and sustainability and their impact on LEED certification. The project is participating in the U.S. Green Building Council LEED-CI (commercial interiors) pilot program introducing green building practices to the commercial lease space real estate marketplace.

The recycling of an existing structure for new, adapted use opened up new challenges and opportunities for innovation. Each design element was assessed relative to its impact and contribution on the creation of a high performance and sustainable structure, including savings on materials and labor, leveraging tax credits and the reduction of space requirements, building costs and future operating costs through shared studio/theater facilities and combined educational areas. Building performance and efficiency are especially important to a multiple media organization such as ideastream operating in an industry typically known for high energy usages.

Monica Green, AIA, CSI, CCS, associate principal of Westlake Reed Leskosky, and the first individual in Ohio to be designated as a LEED accredited professional by the U.S. Green Building Council (USGBC), recognizes the importance of leadership decisions in sustainable design, “The decision making process contributed to the success of Idea Center with LEED for commercial interiors. One crucial decision was to create a partnership to share space among community organizations, resulting in lower space requirements, leading to reduced building costs and operating costs. The other crucial decision was to reuse an existing downtown building, saving on materials and contributing to the continued economic revival of an historic district.”

Green continues, “Rather than looking at each individual LEED point, it is the cumulative effect of all of the small decisions, the attention to the myriad of little measures, that LEED brings into focus and that makes this project a success.”

Kathryn Jensen of ideastream also emphasizes the higher value of stewardship, “Sustainability at Idea Center goes beyond the credits for points.”

“We achieve something better for the neighborhood – a “cool” building, less ozone depletion, for example. During this process of making the space work for multiple partners and making a high performance building, we thought about it in micro issues, but yet the impact of each decision on the larger community is enormous,” Jensen concludes.

Tom Einhouse of Playhouse Square Foundation concurs, “Essentially we have saved and recycled a building. We had already invested in a centralized chilled water plant using district steam for heat. There were a number of high impact initiatives that were suggested throughout the process to do things a little differently and that really worked. We now know things that we will always do as we go forward, regardless of whether we get a LEED point, but because we know they are the right things to do.”

Sustainable systems include efficient delivery of clean power, occupancy sensors to lower operational costs, a central grounding system yielding additional benefits, a monitoring and control system to regulate energy according to actual need, and a large scale backup power generator and fuel storage tank to address requirements for high operational reliability. Design and restoration issues encompassed maximizing occupied space, window replacement, reuse of existing building components, paint selection and the use of new materials with recycled content.

The achievement of high performance in energy and environmental design at Idea Center and the Idea Center tenant suite results from a number of strategies in a number of categories:

Sustainable Sites:

A highly reflective roof decreases the amount of heat inside the building and lowers cooling costs. This roof also decreases the temperature in the Idea Center neighborhood, decreasing the “heat island” effect.

By reusing an existing building, materials were saved by minimizing new construction, and serving as a catalyst for other redevelopment and business relocation in the neighborhood.

Taking advantage of a bus stop not more than 20 feet away from entrance of building, Idea Center resides in the area of the Euclid Corridor Project, which, when completed, will reduce automobile traffic, thus reducing consumption of fossil fuels and pollution (CO₂).

Idea Center provides storage for bikes, and also includes lockers, showers and changing rooms, reducing the need for an individual vehicle, and further reducing consumption of fossil fuels and pollution.

Water Use Reduction:

Sensor activated faucets are installed at all restrooms which can reduce water usage by 20%.

Energy and Atmosphere:

There is zero use of CFC based refrigerants in the tenant suite HVAC and refrigeration systems, and thus no emissions causing ozone depletion.

The use of T5 HO lamps reduced the amount of light fixtures necessary, contributing to lower lighting power loads and exceeding the ASHRAE/IESNA 90.1 standards. Automatic occupancy lighting controls have been installed so lighting is only on when necessary.

Demand Control Ventilation (DCV), increased wall insulation, and window replacement reduces energy associated with heating and cooling. DCV varies the amount of outside air when the population in the building varies. When rooms are partially occupied, less outdoor air is introduced than when the building is fully occupied.

Tenants have access to read their energy meters, encouraging energy usage consciousness. Tenants are responsible for the utilities, stimulating a decrease in unnecessary energy waste.

Installation of high efficiency, harmonic mitigating transformers harvests significant energy savings and environmental protection benefits that have far reaching benefits lasting the life of the facility.

Materials & Resources:

A recycling program for all tenants covers the following materials: paper, corrugated cardboard, glass, plastics, and metals

Materials were made with post consumer/post industrial recycled material, including access flooring, wood doors, steel doors and frames, metal lockers, carpet, metal studs, audience seating, exterior metal panels, steel and other miscellaneous metals, concrete (fly ash), sound control doors, overhead coiling doors, acoustic ceilings, and aluminum and steel EMI protection.

Materials were made with regional materials (manufactured regionally within a 500 mile radius) including woodwork, acoustic doors, coiling doors, glass, operable partitions, acoustic panels, exterior metal panels, metal lockers, elevator equipment, carpet tile, metal studs, steel and miscellaneous metals, and composite floor tile.

Indoor Environmental Quality

Outside air ventilation is provided and results in the prevention of indoor air quality problems.

Idea Center is a non-smoking facility.

Carbon dioxide monitoring sensors detect ventilation performance and requirements based on occupancy.

Intensified housekeeping during construction prevented indoor air quality problems and maintains well being of construction workers and building occupants.

The building was flushed out (air handling equipment operated with new filters and outside air) prior to occupancy to remove any particles left in the air or on surfaces by the construction process.

Low-emitting materials and products used include sealants, adhesives, carpet, composite wood, systems furniture and most paints.

Green housekeeping practices and products meeting Green Seal standards will ensure that good indoor environmental quality is maintained once the building is occupied and operating.

Broadcast Systems, Equipment Integration, Theatrical Sound and Audio/Video Systems Design: Synergies and Connectivity

The Systems Group, LLC (TSG) of Hoboken, New Jersey is the broadcast and A/V systems design and equipment integration specialist for the Idea Center tenant suite. Providing systems design and architectural infrastructure planning and consulting support as well as turnkey broadcast, A/V, and distance learning system implementation, TSG joined the project team in 2004 to ensure that the needs of public stations WVIZ/PBS (TV) and 90.3 WCPN (radio) were integrated into the facility workflow planning and infrastructure design. Tasked with developing a “seamless, synergistic media content production and management environment,” TSG studied the operations and objectives of each media entity (radio, TV, educational services, theatrical reinforcement, online web delivery, and A/V branding) and dovetailed connectivity and operational subsystems for each entity together to support near-term operations and long-term expansion of programming initiatives.

Westfield Studio Theatre: TSG’s design contributions to *Westfield Studio Theatre* resulted in a consolidation of theatrical sound reinforcement, A/V presentation technology, and broadcasting simulcast infrastructure that includes provisions for multiple performance configurations from a Crestron automation system on the push of a button. Communications systems designed into the space include party-line and selective access point-to-point intercom, talent earpiece foldback, teleprompter, wireless and wired microphones, assisted listening technology, and a sound system that can support single presenter, live theatre and musical group sound, and theatrical release screenings (including various surround environments).

Talent microphones and cameras plugged into any of the six Broadcast Service Panels in *Westfield Studio Theatre* are immediately available in all television, radio, and multi-track sound recording production operations environments.

Sounds and images from these live performances are also available for viewing as they occur or quickly edited with special effects, in any of the lobbies, façade projectors, or educational classrooms. With this access, events such as musical and theatrical performances, political “town hall meetings,” or landmark discussions and public addresses can be staged, recorded, and transmitted to audiences and interactive groups on any of the Idea Center’s programming outlets.

Radio Functionality and Facilities: The radio facilities for 90.3 WCPN and wcpn.org streaming are housed in three control rooms and three performance studios that are clustered to allow the simultaneous set up and production of multiple programs. The primary *Studio 4* houses the primary WCPN productions during morning and evening drive times, accommodates daily talk shows and interviews during the day time broadcasts, as well as musical programs during the evening and overnight. *Studio 5* serves as a recording and packaging studio for radio, and allows voice tracking as well as multi-track editing for more elaborate pieces aired throughout the day.

Edit Rooms 6-9 are audio edit suites that allow desktop computer editing of both scripts and audio pieces that are integrated into the daily radio shows. These rooms also allow tracking of audio for use as television voiceovers for promotional spots. *Edit Room 5* is a multi-track digital audio workstation room that provides a more private environment for project based multi-track audio package creation and audio sweetening that service radio, television, and web outlets. *KeyBank Studio* is a world-class recording studio space with glass walls between control suite and double-height performance space, as well as a glass partition that allows viewing of production operations from the *Outcalt Lobby* area near the building's entrance.

Television Functionality and Facilities: The *Cleveland Foundation Lobby* separates two large performance spaces including *Smith Studio* and the *Gund Studio*. The *Gund Studio* has an elaborate sprung floor designed for dance rehearsals and recitals, and small presentations, while the *Smith Studio* space is a glass walled production space that will provide a street view background through the use of automated color correcting shades. Upon entry to the inner lobby, the adjoining *KeyBank* and the *Westfield Studio Theatre* are accessible as the other two principal television production and recording spaces, but all lobby areas and several other scenic locales (including rooftop, radio newsroom, and cyber boardroom areas) provide a variety of backdrops that reinforce the Idea Center brand. Control rooms for production throughout the Idea Center include a multi-purpose standard definition TV control room/linear edit room, and a high-definition control room.

A multimedia projection booth on the mezzanine level of the *Westfield Studio Theatre* is a technology hub for A/V sources and control interfaces serving *Westfield Studio Theatre* itself, as well as the various lobbies that also serve as audience holding areas during live performances.

The elaborate interconnect between these spaces will allow Playhouse Square and ideastream to open up studio productions in any of these spaces to display and for transmission equipment in various areas to service any number of audience and broadcast outlets. *Edits 1-4* are nonlinear video edit rooms that service television and web sides with promotional video packages and multimedia presentation content for presentations in the *Westfield Studio Theatre*, educational services and lobby areas, as well as for direct broadcast as part of promotional and community news programming. The enhanced production capabilities, post technology, and outreach connectivity have been planned to service the entire Playhouse Square theatre complex, including Star Plaza large screen displays and zipper message boards on the building exterior and facing building façades.

“Smart Matrix” Systems Technology Approach: One Touch of a Button

The technology approach used by The Systems Group in the Idea Center is a mix of old and new platforms interconnected by a “smart matrix” topology. All systems, whether for distribution of audio, video, data, or communications links, are home-run to matrix-based routing and mixing systems located in the *Technical Center*, a 90-rack climate controlled equipment room in the lower level center of Idea Center. All signal routing, processing, and transmission activities are monitored in the adjacent *STERIS Foundation Master Control* room. This room includes a virtual multi-viewer monitoring system that allows ideastream technical operations staff to view and evaluate all incoming and outgoing signals, access user interfaces to all mission-critical systems for troubleshooting and repair, and annunciate system faults and failures that may threaten records or delivery of all activities in the facility.

All fault sensing is tied to a web-based monitoring and control system, and any major system failures can be reported to the engineering staff via automated email and pager notification direct from *STERIS Master Control*.

STERIS Master Control has also been designed for surround sound audio monitoring to allow future initiatives in local origination of HDTV and HD radio to be quality controlled for broadcast in this space, ensuring that programming acquired at Idea Center from PBS, tape-based source, and local studio production can be broadcast to the Northeast Ohio area and nationwide through a multitude of satellite, fiber, microwave, web, and telephone company links, all centrally controllable – linking Idea Center to events around the world with a touch of a button.

ideastream transmits PBS and its locally-produced programming through its WVIZ terrestrial broadcast channel. ideastream is the Northeast Ohio Emergency Alert System host, and severe weather alerts, missing persons “Amber Alerts,” and governmental emergency annunciation is processed and transmitted in Idea Center in audio and video form on the public television and radio transmission frequencies.

In addition, WVIZ transmits school closings and election results on its primary outbound channels as a community service. Five lines to and from the origination facility in Columbus, Ohio allow extensive outreach connectivity for educational services and programming to Ohio school districts statewide. This connectivity is enhanced by low power direct transmission to school districts via the WVIZ Instructional Television Fixed Service (ITFS) connectivity network; distance learning codecs for the Northeast Ohio Teachers Association (NOTA) provide interactive instructional audio and video to subscriber schools state-wide. In addition, the Cleveland Radio Reading Service provides spoken word topical news broadcasts to the visually handicapped over both the WCPN and WVIZ transmission streams.

A significant portion of the programming broadcast on WVIZ/PBS is closed captioned for the hearing impaired; Descriptive Video Service (DVS) audio accompanies many WVIZ broadcasts. Many of the productions staged in *Westfield Studio Theatre* are supported by translation for second language audience members and reinforced for the hearing impaired via an in-house assistive listening system.

With this powerful complement of audience focused technologies, Idea Center partners, ideastream and Playhouse Square Foundation, bring students and educators together from around the state (and internationally), and provides a hosting facility for educational programming with content that draws from some of the most respected news and educational sources available.