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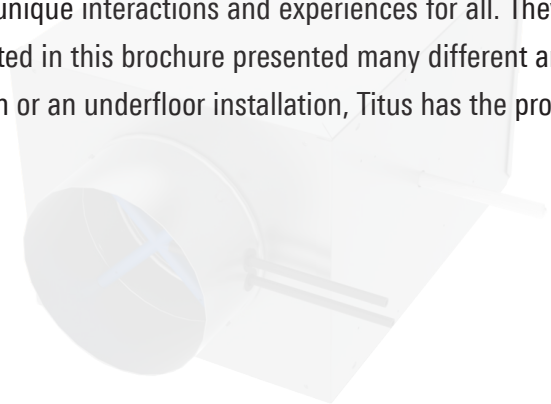
Culture Venues



Redefine your comfort zone™

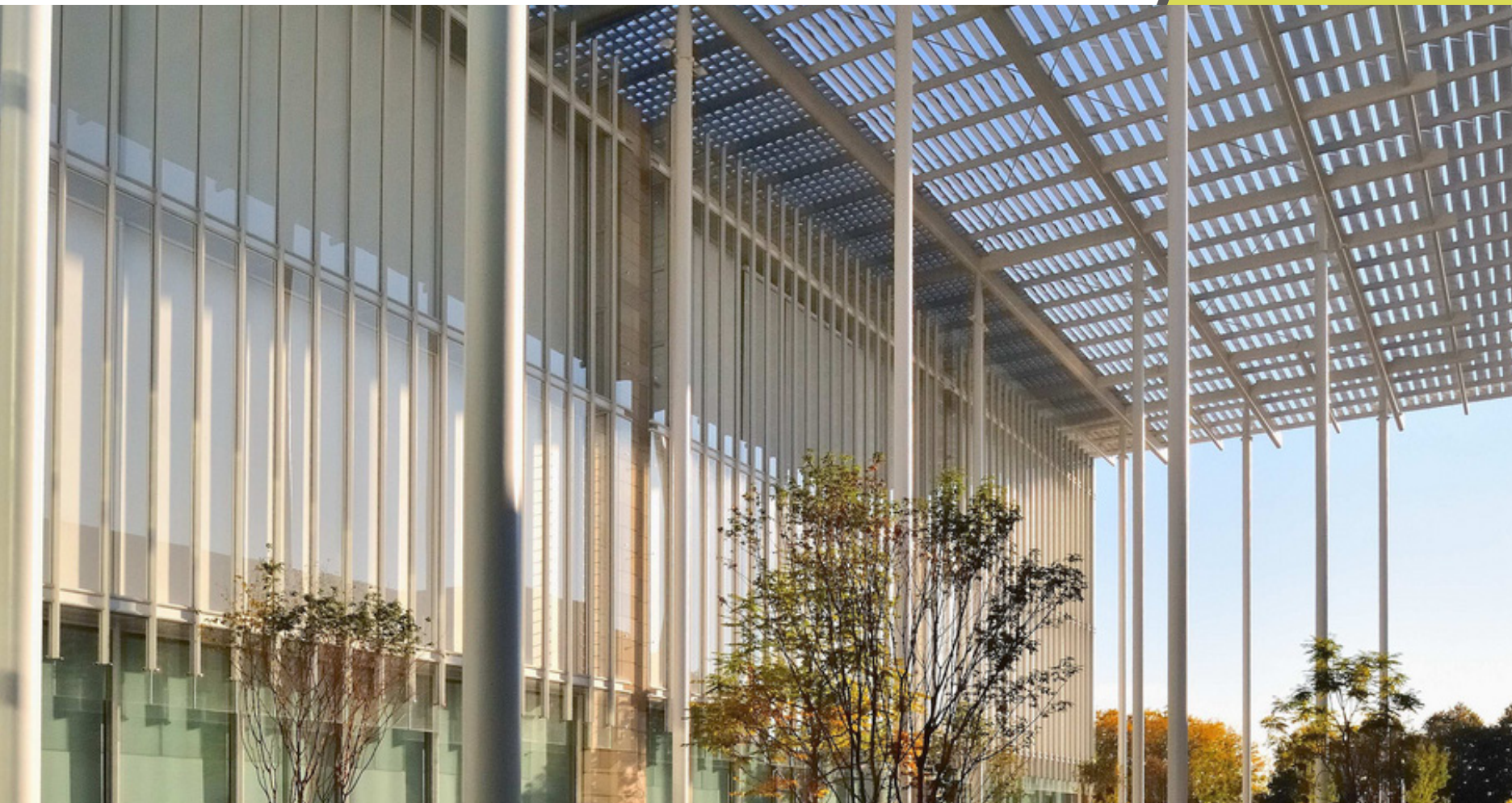
As has been our legacy, we continue to advance every aspect of our business to meet the changing needs of our customers and HVAC professionals world wide. At Titus our goal is very clear - to help the people who depend upon us by continuing to innovate and advance the science of air distribution. We are guided in this work by our commitment to building on opportunities that significantly improve the health, efficiency, comfort and aesthetics of the environments in which our products are used. We have a knowledgeable and experienced staff of industry professionals ready and available to assist you and your consumers with any aspect of an HVAC problem.

Intelligent innovations doesn't stop with the products we create, it extends itself into all realms of the creative process which includes literature. Museums, theaters and other cultural facilities make up a huge portion of the entertainment we enjoy and experience in society everyday. People leave fascinated with the drama they witnessed by actors or enriched by the music they heard by an orchestra. Today, the venues that house these events are state-of-the-art facilities that provide unique interactions and experiences for all. They are built with new technologies that enhances the patron's experience. The projects listed in this brochure presented many different and unique challenges that Titus had a solution for. Whether you have a ceiling application or an underfloor installation, Titus has the products and staff to meet and exceed your HVAC needs.





- 05 - Art Institute of Chicago - Modern Wing
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**PROJECT - ART INSTITUTE OF CHICAGO - MODERN WING**

ARCHITECT - RENZO PIANO  
LOCATION - CHICAGO, ILLINOIS  
LEED CERTIFICATION - NONE



## ABOUT THE PROJECT

The latest addition to the Art Institute of Chicago is the Modern Wing. It houses an immense collection of 20th and 21st-century art. Designed by the renowned Pritzker Prize-winning architect Renzo Piano, the Modern Wing contains modern European paintings and sculptures, contemporary art, architecture and design, and photography.

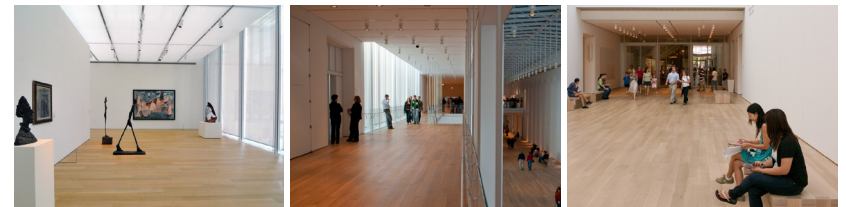
The Modern Wing is a 264,000 square-foot building that utilizes many sustainable features throughout. The focus of the architect was to create an impressive space that maximized the use of natural resources while minimizing the impact on the environment. On the exterior, a sunshade system is featured. This unique system filters sunlight into the building, thus saving on electricity. The interior lighting system compensates and adjusts the lights to maximize the usage of interior lights. The Modern Wing also uses a state-of-the-art HVAC system as well.

## THE TITUS SOLUTION

For high profile projects, Titus has a myriad of products available that not only blend well into any ceiling application, but provide superior performance. We provided several grilles and diffusers for this project, but the primary source of air distribution utilized is the ML.

The Titus ML is a modulinear high performance, high quality linear slot ceiling diffuser. It is designed for variable air volume systems and projects a uniform blanket of air that adheres to the ceiling even at low flow rates. The unique "ice tong" deflector blades allows for changes in air volume and direction from the face of the diffuser by gradually moving the pattern controllers.

Among the many other products that can be seen throughout the new wing are the





TMRA-AA, 300/350R grilles and the MP. The TMRA-AA is an adjustable round ceiling diffuser designed for both heating and cooling applications. All sizes have four cones, giving uniformity of appearance where different sizes are used in the same area. It delivers a uniform 360° air discharge pattern and exhibits excellent performance in variable air volume systems. Titus' 300/350 series grilles define the standard for the industry. These grilles form the back bone of a standard offering that will meet any application requirements. The Titus MP is an optional plenum for use with the ML modulinear series. When combined with the ML diffuser, the MP provides a tight horizontal air pattern that clings to the ceiling even at low volumes.

## THE END RESULT

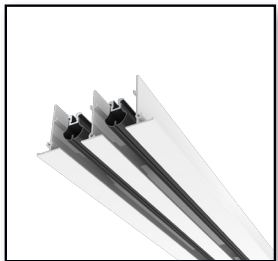
The addition of the new Modern Wing allows the Art Institute of Chicago to be viewed as an upper echelon facility. The new space makes the Art Institute the second largest museum in the United States, one that houses an extraordinary collection of art, sculptures and photography that satisfies the artistic and cultural

needs of the many patrons who will visit this impressive facility.



## Art Institute of Chicago - Modern Wing

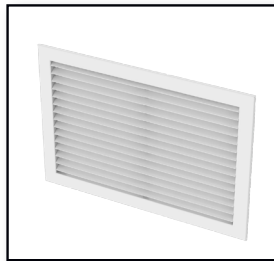
### PRODUCTS LIST



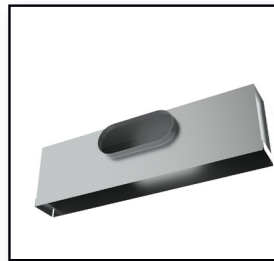
ML



TMR-AA



300/350R



MP





## PROJECT - BOSTON CHILDREN'S MUSEUM

ARCHITECT - CAMBRIDGE SEVEN ARCHITECTS

LOCATION - BOSTON, MASSACHUSETTS

LEED CERTIFICATION - LEED GOLD CERTIFICATION



## ABOUT THE PROJECT

The recent addition and renovation to the Boston Children's Museum utilized many green design elements that garnered the facility the LEED Gold Certification for NC. Designed by Cambridge Seven Associates, the architectural firm created a building that serves not only as a museum, but as a classroom for the environment for the young and old to explore together.

The energy harvesting potential of the building is amazing. The architects at Cambridge Seven were committed to protecting the adjacent Fort Point Channel. This was done by reducing the storm water discharge. Storm and roof water are collected and stored on site in a cistern, thus providing a gray-water source. The building also features living green roof systems that enhance and improve insulation, reduce heat, and hold rainwater. The architects had to reconfigure the interior of the old warehouse building, revamp energy and lighting-control systems, consolidate the museum's exhibit space and offices to the first three floors, and add a theater to the structure.

## THE TITUS SOLUTION

Titus has many Green Solutions that work well in an open-ceiling application and assist in achieving LEED certification. The products selected for this project were the DTFS fan powered terminal unit, the CT-700 and 300/350R grilles and the DESV single duct terminal unit.

The DTFS is a digitally controlled fan powered terminal unit that has an energy efficient fan motor mounted with vibration isolators. It maintains the variable air volume (VAV) energy savings at the central fan. The DTFS is a quiet unit that provides pressure independent airflow control. It is available from 150 - 3800 cfm flow range. The CT-700 and 300/350R grilles utilized are excellent units for air distribution. Both





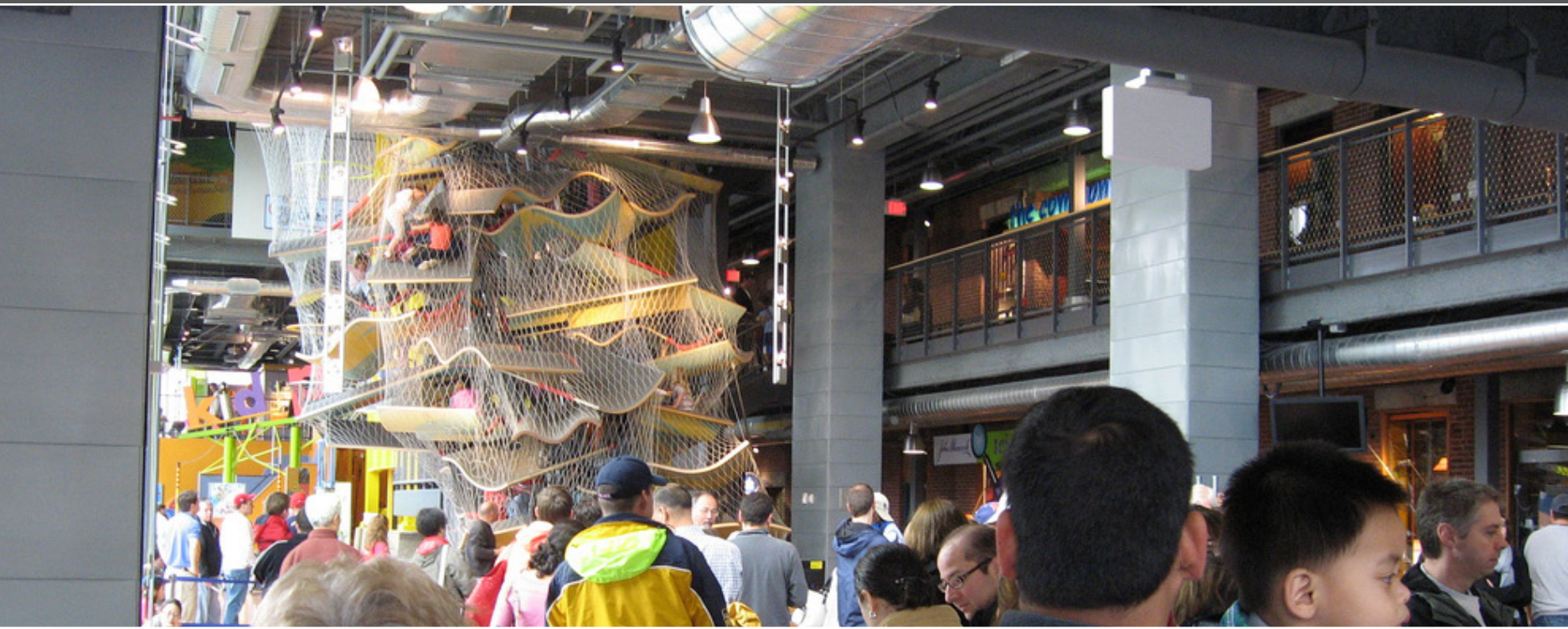
grilles have blades parallel to the long dimension and work well in open ceiling environments.

The DESV is a single duct terminal unit. Its primary function is to regulate airflow to a zone, in response to zone temperature requirements. The digitally controlled unit is unique as it incorporates many design features that increase performance, decrease service and installation costs, and offers increased value, over and above its basic function.

## THE END RESULT

The primary mission for the Boston Children's Museum is to exist to help children and families enjoy, understand and become active citizens of the world in which they live. The new addition further enhances this by placing emphasis on the environmental, health, and human aspects while providing a safe place to learn and monitor the performance of a Green Building. The museum is fully committed to

having children grow up as successful learners who respect others and the natural world. They encourage imagination, curiosity, investigation, innovation, and play.

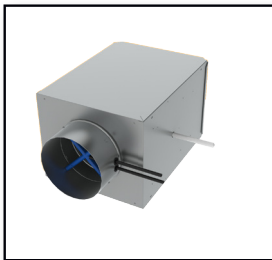


## Boston Children's Museum

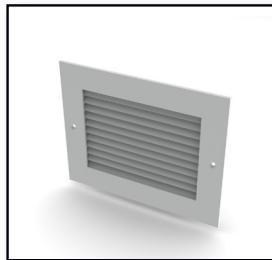
### PRODUCTS LIST



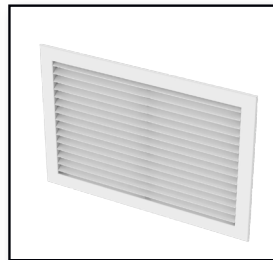
DTFS



DESV



CT-700



300/350R



## PROJECT - PEABODY ESSEX MUSEUM

ARCHITECT - SAFDIE ARCHITECTS  
LOCATION - SALEM, MASSACHUSETTS  
LEED CERTIFICATION - NONE



## ABOUT THE PROJECT

The Peabody Essex Museum is the world's oldest continuously operating museum, which makes it one of the first museums in the United States to collect works of art and culture from around the world. Its collection consists of historic American, Asian, Oceanic, Native American, Maritime, and African art and culture.

The Peabody Museum renovation and expansion was designed to incorporate the rich history of the surrounding area while ushering in an age of architectural development. The design team at Safdie Architects created an intriguing and impressive addition to the museum by perfectly fusing together curved glass and brick. The glass allows an abundance of natural light to penetrate deep into the museum and also offers breathtaking views of the space that seems to go on forever. The old and new buildings combine to offer 101,000 square-feet of space to house the museum's collections.

## THE TITUS SOLUTION

Titus was extremely pleased to provide the air distribution for such a prestigious project. Our products selected not only blended well with the overall design of the project, but provided superior performance unmatched by anyone in the HVAC market. The Titus FlowBar is an architectural linear diffuser system that maximizes engineering performance without sacrificing aesthetic considerations for the designer. FlowBar's outstanding performance allows higher airflows than conventional linear diffusers. The wide array of slot widths allow for more CFM per linear foot while minimizing noise and pressure loss. The Flowbar system is available in continuous linear, incremental linear and square configurations.

The Titus ML Modulinear diffuser is a high performance, high quality linear slot diffuser. The unique "ice tong" deflector blades allow both changes in air volume and direction from the face of the diffuser. This diffuser is also available in 1-, through





8-slot configurations. Our 300/350 Series supply grilles define the standard for the industry. With high quality and competitive pricing these grilles form the back bone of a standard offering that will meet any application requirements. Finally, The TMS is a square ceiling diffuser that delivers supply air in a true 360° pattern with low pressure drop. The uniform, nearly horizontal jet from the outer cone maintains effective room air distribution even when the air volume varies over a considerable range. All sizes have three cones, giving a uniform appearance where different neck sizes are used in the same area. There are additional products installed in the museum as well.

### THE END RESULT

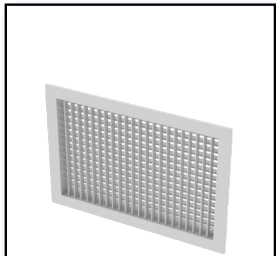
The overall mission of the Peabody Essex Museum is to celebrate the artistic and cultural creativity of the world by collecting pieces that promote awareness, enrich lives and engage the minds of the young and old to see a bigger world than the one they previously knew. Their new addition will propel them forward in their endeavor

to offer new programs and to continue their efforts enrich the lives of all cultures throughout the world.

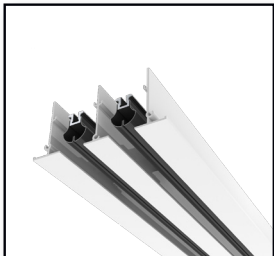


## Peabody Essex Museum

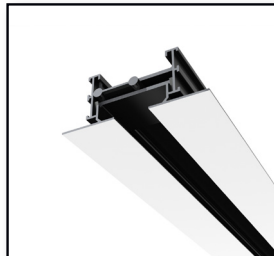
### PRODUCTS LIST



300F



ML



FLOWBAR



TMS-AA





## PROJECT - WINSPEAR OPERA HOUSE

ARCHITECT - FOSTER + PARTNERS

LOCATION - DALLAS, TEXAS

LEED CERTIFICATION - NONE



## ABOUT THE PROJECT

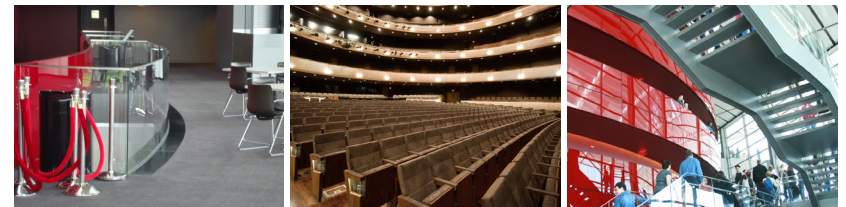
The Margot and Bill Winspear Opera House is one of five buildings that make up the new Dallas Center for the Performing Arts. It is the new home for the Dallas Opera, Texas Ballet Theater, touring shows and numerous other productions. Designed to take opera houses into the twenty first century, the Winspear Opera House is positioned to provide audiences a deeper theatrical experience.

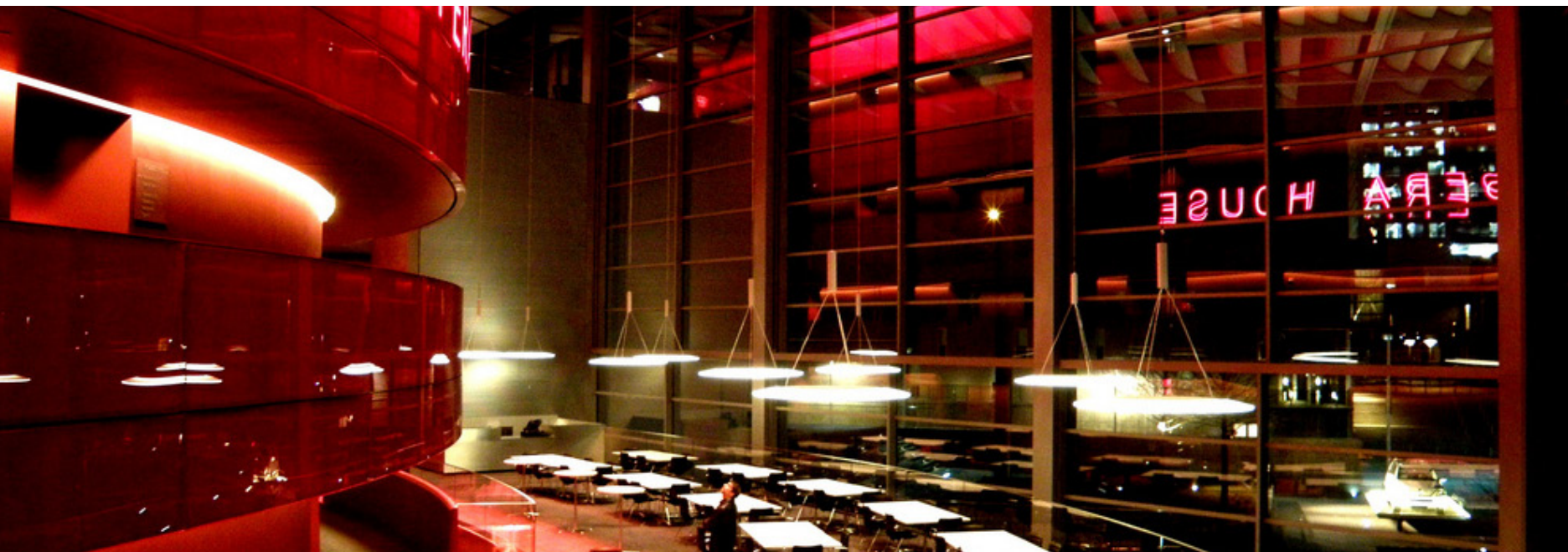
Designed by the renowned architectural firm of Foster + Partners, this new opera house was created to be environmentally aware while incorporating state-of-the-art technology. The ever-changing climate in Dallas presented a unique challenge that caused the architects to explore a variety of solutions. For the sometimes overwhelming heat associated with Texas, a solar canopy was built on the exterior of the building. It extends from the building and creates an appealing and unique outdoor space for the facility and its patrons to relax. There is also an abundance of natural light that penetrates deep into the sixty-foot high lobby area.

## THE TITUS SOLUTION

When the designers of the Winspear wanted a Green solution for the air distribution, they turned to Titus. The TAF-R diffuser was selected to be the primary source of airflow inside the performance hall. The TAF-R diffuser is a round underfloor product that is architecturally pleasing and designed for use in high induction raised floor applications. It is constructed of a high impact, polymeric material that durable enough to resist foot traffic. This diffuser has the fastest installation in the industry with the new spring clip design and can be relocated easily to another location. It is also a GreenSpec Listed product.

The Titus OMNI-AA is an all-aluminum plaque face diffuser that satisfies architectural and engineering criteria. Its strong, clean, unobtrusive lines harmonize with the





ceiling system without sacrificing performance. The curvature of the OMNI-AA backpan works with the formed edges of the face panel to deliver a uniform 360 degree horizontal air pattern, without excessive noise or pressure drop. It is an excellent selection for variable air volume systems.

### THE END RESULT

The Margot and Bill Winspear Opera House creates an intimate theatrical experience by bringing the audience as close as possible to the performance. The air outlets from Titus further reinforce this by providing superior performance while being installed in areas that do not distract the patrons from the performance.





## Winspear Opera House

### PRODUCTS LIST





**PROJECT - SPERTUS INSTITUTE OF JEWISH STUDIES**

ARCHITECT - KRUECK & SEXTON ARCHITECTS

LOCATION - CHICAGO, ILLINOIS

LEED CERTIFICATION - LEED SILVER CERTIFICATION



## ABOUT THE PROJECT

The Spertus Jewish Institute is deeply rooted in Jewish values and invites people of all ages and backgrounds to explore the multi-faceted Jewish experience. Through its innovative programs and facilities, Spertus inspires learning and fosters understanding for Jews and people of all faiths from around the world. The new facility for Spertus is a mixed-use program containing exhibition galleries, a library, a 400-seat multi-use auditorium and much more.

Designed by the award-winning architectural firm of Krueck and Sexton Architects, this LEED Silver Certified building is an innovative and environmentally sustainable facility that features interconnected interior spaces and a one-of-a-kind, ten-story faceted window that provides spectacular views of Chicago. A 6,700 square foot green roof - planted with special vegetation - manages storm water, absorbs air pollution and helps keep the building cool in the summer. The glass wall is built from over 700 pieces of glass in 556 different shapes. Thanks to recent advancements in technology, it was possible to delineate and engineer a glass shape as complex as the ones used in the glass wall of the Spertus building.

## THE TITUS SOLUTION

The Titus products selected for this project were the ML linear slot ceiling diffuser, the DTQS fan powered terminal, the R-OMNI ceiling diffuser, and the MPI plenum. The Titus ML Modulinear diffuser is a high performance diffuser that utilizes uniquely designed "ice tong" deflector blades. These deflector blades allow for both changes in the air volume and direction from the face of the diffuser by gradually moving the pattern controllers. ML diffusers are designed for variable air volume systems (VAV) and project a uniform blanket of air that adheres to the ceiling even at low flow rates.

The DTQS is a fan powered terminal unit that provides constant air and blends the





temperature well while maintaining the variable air volume energy savings at the central fan. The MPI plenum is an insulated plenum that utilizes the Modulinear diffuser's excellent VAV performance to keep the air on the ceiling in a tight horizontal pattern. The R-OMNI's smooth face is adjustable in three positions for horizontal or vertical airflow. It can be used effectively in heating or cooling applications

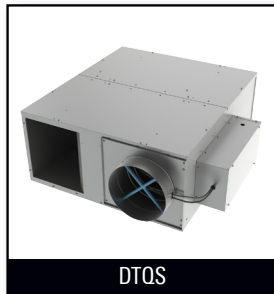
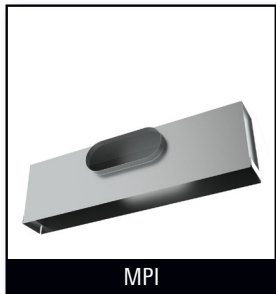
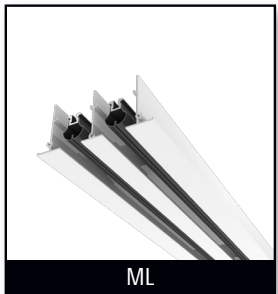
## THE END RESULT

Even though the glass facade is huge collectively, individually they are the same size as the other buildings on Michigan Avenue. The glass facade also consistently allows natural light to penetrate from several angles and expands the views of the interior. This emphasis on light echoes the logo of Spertus - a flame accompanied by the biblical phrase yehi meaning "let there be light." This symbolizes both physical light and the light of learning.



## Spertus Institute of Jewish Studies

### PRODUCTS LIST







**PROJECT - NATIONAL MUSEUM OF THE AMERICAN INDIAN - SMITHSONIAN**

ARCHITECT - DOUGLAS CARDINAL ARCHITECTS / GBC ARCHITECTS

LOCATION - WASHINGTON, D.C.

LEED CERTIFICATION - LEED SILVER CERTIFICATION



## ABOUT THE PROJECT

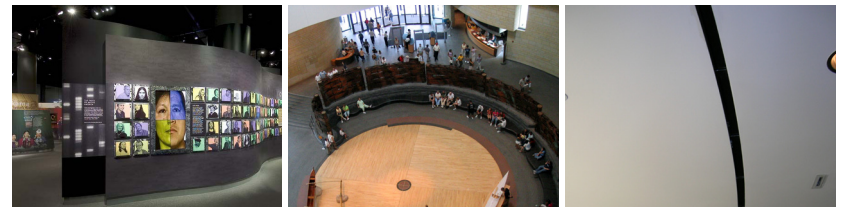
The Smithsonian's National Museum of the American Indian on the National Mall opened in September 2004. Several years in the making, it is the first national museum in the United States dedicated exclusively to the Native American heritage. The building is five-stories tall and is 250,000 square-feet. Immediately noticeable are the abundance of curves the building consists of. This curvilinear form is constructed of a golden-colored Kasota limestone that is designed to evoke natural rock formations that have been shaped by wind and water over thousands of years.

The museum is set on a 4.25-acre site and is surrounded by simulated wetlands. The National Museum's east-facing entrance, its prism window and its 120-foot-high space for contemporary Native performances are direct results of extensive consultations with Native Americans. Similar to the Heye Center in Lower Manhattan, the museum offers a range of exhibitions, film and video screenings, school group programs, public programs and living culture presentations throughout the year.

## THE TITUS SOLUTION

Providing air distribution solutions is nothing new for Titus, we have a rich history of proven success. The curved form of the building meant traditional ceiling diffusers would not work, but that an alternative would be needed - the FlowBar.

Titus FlowBar is an architectural linear diffuser system that maximizes engineering performance without sacrificing aesthetic considerations for the designer. Its outstanding performance allows higher airflows than conventional linear diffuser systems. The wide array of slot widths that are available allow for more CFM per linear foot while minimizing noise and pressure loss. The Flowbar system is available in continuous linear, incremental linear and square configurations.





FlowBar also provides an installation alternative to the conventional linear diffuser. Conventional linear diffusers are supported by the duct system and in most cases are installed after the ceiling system is in place. For complete ceiling integration, the FlowBar system is offered with a large selection of flange styles compatible with various ceiling applications. Our unique clip/hanger support system allows for quick and easy installations. The system actually supports and becomes an integral part of the ceiling system and is installed along with the ceiling suspension system. This entire series of diffusers is available with two unique pattern controllers.

Other Titus products that can be found throughout the museum are the CT linear bar diffuser, the 300/350F grille and the TDC-AA diffuser. These additional GRD products do a great job of complementing the FlowBar system while providing superior performance for the facility.

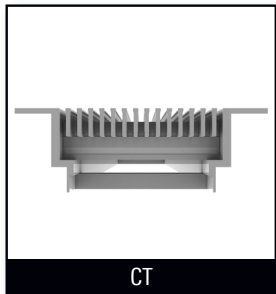
## THE END RESULT

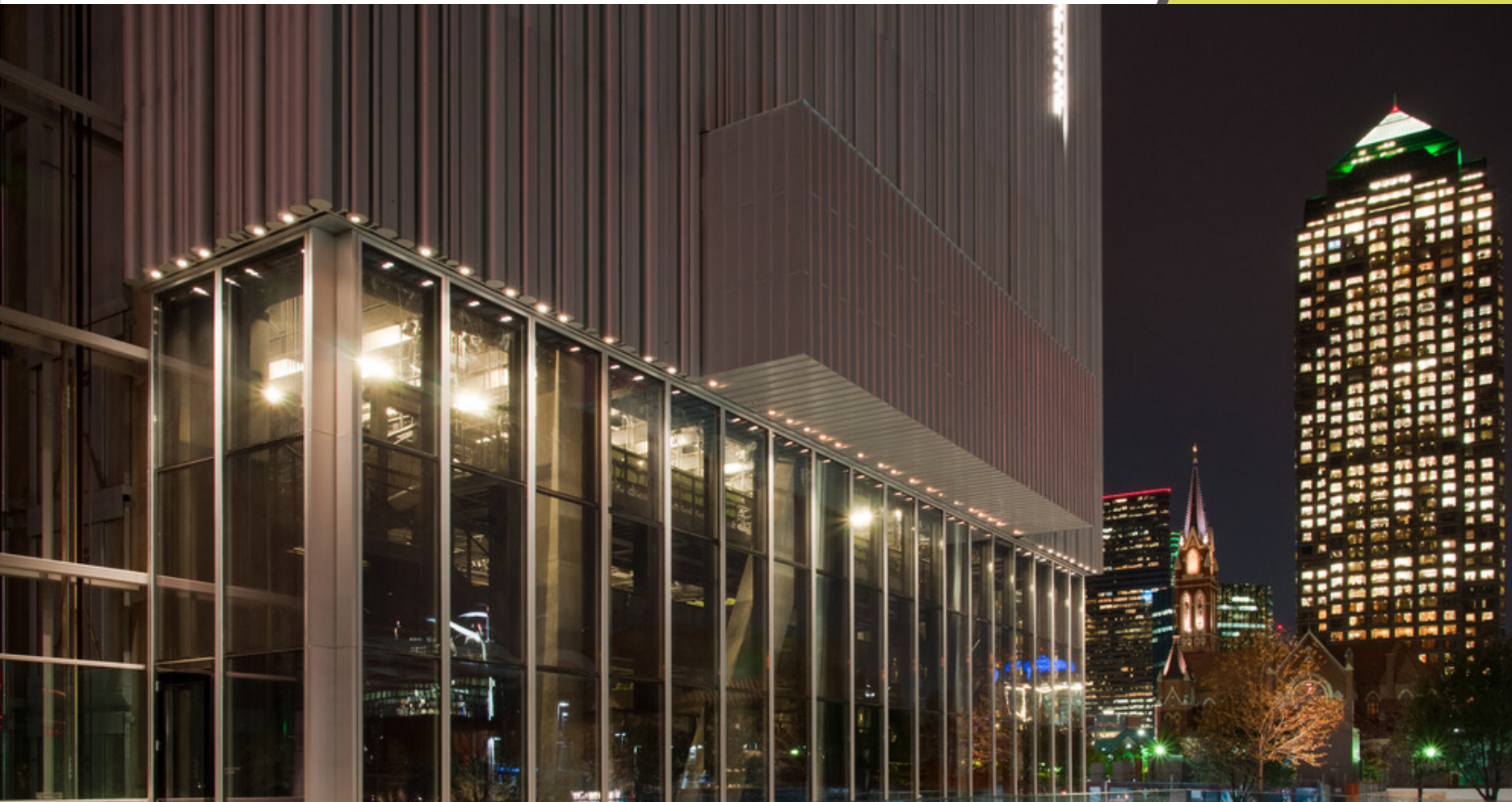
The National Museum of the American Indian is an environmentally friendly building that was designed to express the spirit of the Native American people inside and out. Positioned close to nature and having a form that represents wind, this living museum is a true testament to the culture and heritage of the Native American people and a place that many generations of all races can learn about this unique culture.



## National Museum of the American Indian - Smithsonian

### PRODUCTS LIST





**PROJECT - DEE & CHARLES WYLY THEATRE**

ARCHITECT - REX / OMA  
LOCATION - DALLAS, TEXAS  
LEED CERTIFICATION - NONE



## ABOUT THE PROJECT

The Dallas Center for the Performing Arts has a new and breathtakingly innovative venue to hold performances. The Dee and Charles Wyly Theatre is the latest addition to the downtown skyline in Dallas, Texas. It is an 80,300 square foot facility that is destined to attract many new and exciting events and shows to come to town.

The 12-story building designed by Rem Koolhaas of OMA breaks out of the traditional theatre layout by featuring an advanced vertically stacked design. At its base, the auditorium space is a three-sided glass enclosure, allowing the remainder of the building to rise as if floating over the performance space. With this unique feature, the building can include the city skyline as a backdrop for a performance by raising its walls.

The 575-seat multi-form theatre has the ability to transform itself into a variety of configurations in less than a day that includes the following: a proscenium, thrust, traverse, arena, flat floor, and black box. This design flexibility will allow the venue to host a wide array of classical and experimental dramas as well as musical productions, world renowned vocalists, and dance troupes.

## THE TITUS SOLUTION

When considering the comfort level of the many patrons that would frequent the theatre for various events, the Wyly Theatre wanted to employ several Green Building concepts which includes the HVAC system. Titus offered several green solutions to choose from. Titus' Chilled Beam technology was selected because it provides maximum comfort and superior performance over the competition.

The LPB2, a Passive Chilled Beam Diffuser was utilized to provide the air distribution for this facility. This diffuser doesn't require a supply air connection, but cools by





utilizing a water coil and natural convection. The LPB2 has a linear design with integrated circulation air openings in the lower section of its enclosed cabinet. There is also minimal maintenance associated with this unit because the diffuser does not contain any fan, filter, drainage piping, or movable parts.

The Dee & Charles Wylie Theatre also utilizes another Titus product; the R-OMNI ceiling diffuser. The R-OMNI is a round plaque diffuser that blends well into any architectural design. The smooth face is adjustable in three positions for either horizontal or vertical airflow. It is installed in numerous offices throughout this state-of-the-art theatre. The R-OMNI provides a uniform 360 degree air discharge pattern and works well in heating and cooling applications. It also performs well in variable air volume systems.

## THE END RESULT

Clad in a unique and innovative tubular aluminum, the Dee & Charles Wylie Theatre adds to an already impressive rebirth for the AT&T Performing Arts Center and the Dallas Arts District. Patrons will now experience theatre, dance, lectures, etc... in a whole new way. The design of the facility allows the guests to become more engaged by bringing them closer to the performances, thus creating a more visual and dramatic experience. The Dee and Charles Wylie Theatre is among four new venues that comprise the revitalized center and positions Dallas to be at the forefront of art and entertainment for many years to come.



## Dee & Charles Wyly Theatre

### PRODUCTS LIST







**PROJECT - NATIONAL UNDERGROUND RAILROAD FREEDOM CENTER**

ARCHITECT - BLACKBURN ARCHITECTS

LOCATION - CINCINNATI, OHIO

LEED CERTIFICATION - NONE



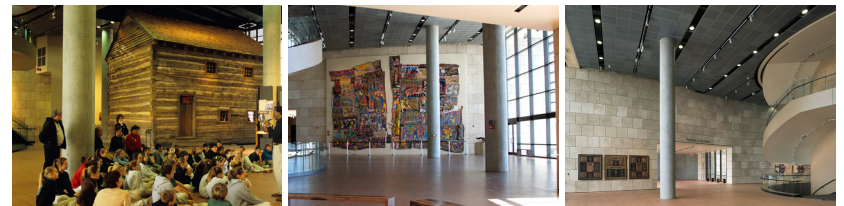
## ABOUT THE PROJECT

The National Underground Railroad Freedom Center opened its doors in August 2004. Since that time, the center has shed light into America's dark past and told the story of the quest for freedom by slaves through images, artifacts and exhibitions. "The Underground Railroad" as it has come to be known, is a dramatic point in the history of America. This secret network of freedom-fighters from all backgrounds helped slaves journey to freedom and eventually cross the Ohio River. The center was purposely built on the banks of the Ohio River because it served as the barrier between the slave states of the South and the free states of the North.

The building consists of three linked pavilions and is 158,000 square-feet. Guests can explore the many different exhibits, which includes an actual slave pen that was removed and restored from a farm house in Kentucky. The Freedom Center also has a story theater, a multi-use theater, an education and research center, a café, and a gift shop.

## THE TITUS SOLUTION

Titus was pleased to partner with the design team on such a prestigious high profile project. The grilles and diffusers featured throughout this impressive facility complement the design of the architects at Blackburn Architects. The airflow for this project is provided by the ML, 50F and the OMNI diffuser. The Titus ML is a modular diffuser that provides high performance. This high quality linear slot diffuser has unique "ice tong" deflector blades that allows for both changes in air volume and direction from the face of the diffuser by gradually adjusted the air pattern controllers. It projects a uniform blanket of air that adheres to the ceiling even during low flow rates. The ML is available in several different border and mounting frames. This makes it an ideal diffuser for any ceiling installation.





The 50F is an aluminum eggcrate grille that has the highest amount of free area for any return grille. This unit is available in many core sizes and the border and grid can either be a mixture of steel and aluminum or completely stainless steel. The OMNI works well in any architectural ceiling. It has strong, clean, unobtrusive lines that blend seamlessly into the ceiling system. This high performing unit is designed to provide a uniform 360 degree horizontal air pattern with minimal noise and pressure drop.

### THE END RESULT

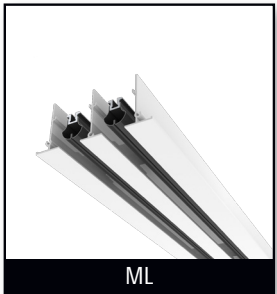
The National Underground Railroad Freedom Center is a testament to the struggle that many slaves endured for their freedom. This center enlightens and educates society on the constant struggle for equality that some even experience today. The Freedom Center serves as a tribute to how far we've come, but also serves as a reminder of how far we must go to propel ourselves even closer to our eventual goal.

# PAVILION OF COURAGE



## National Underground Railroad Freedom Center

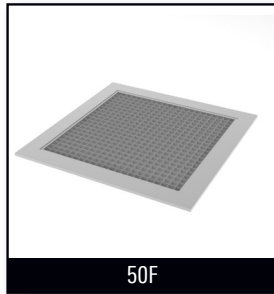
### PRODUCTS LIST



ML



OMNI



50F

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*notes*



R e d e f i n e   y o u r   c o m f o r t   z o n e <sup>™</sup>

*Culture Venues*

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