



VISION


KOHLER RONAN, LLC
CONSULTING ENGINEERS

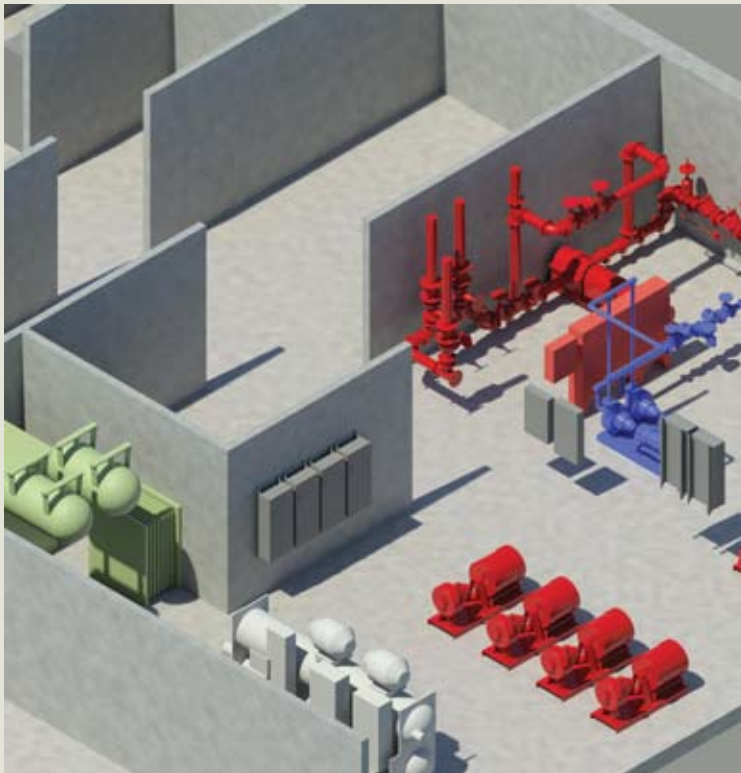
REAPING THE BENEFITS OF REVIT® MEP

Welcome to the inaugural edition of Kohler Ronan's Vision. We will be publishing on a periodic basis to inform our clients of the latest trends in the Architectural, Engineering and Construction industries. Each issue will focus on innovative technologies, specifically providing education via a vis the various types of MEP/FP systems available to the market. We will aim to provide insight into the "tools" utilized by and available to Kohler Ronan when designing MEP/FP systems. It should become clear that in striving to deliver to our

clients the most energy efficient, coordinated and comprehensive set of construction documents, Kohler Ronan investigates and employs all technological resources possible.

In this first issue of Vision we focus on Autodesk's Revit® MEP. Technology in our industry has advanced exponentially in all respects over the last two decades. Just twenty years ago MEP/FP engineers documented their design with pencils and paper; then came autocad in which the drawings were documented via a 2-D

graphical computer program. Today, Revit® MEP enables engineers to develop a three-dimensional set of documents that is integrated with both architectural and structural models. Coordination of major building elements and systems during design, avoiding collisions between elements, reducing the risk of construction cost overruns, and increasing the likelihood of maintaining design and construction schedules are just some of the benefits of Revit® MEP. Please read on to learn how our professionals are putting this tool to use. 



WHAT IS REVIT® MEP?

Revit® MEP is the building design and construction documentation solution for Mechanical, Electrical, and Plumbing (MEP) engineering. With Autodesk's latest software addition to the Revit® platform, engineers can...

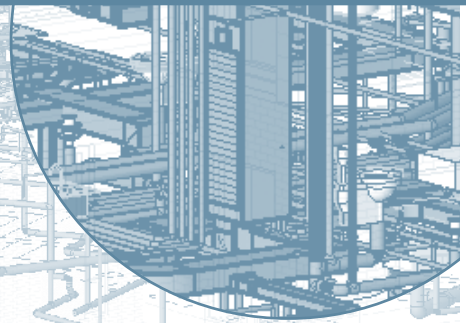
- Seamlessly collaborate with architects using Revit® Architecture in an intuitive design environment
- Minimize coordination errors with architects and the extended project team operating on the Revit® platform
- Incorporate BIM to provide better decision making and building performance analysis in support of sustainable design
- Achieve advanced functionality to create, share and manage building information resulting in increased profitability

IN THIS ISSUE:

PAGE 2: KR PUTS REVIT® MEP TO THE TEST

PAGE 3: MAXIMIZING EFFICIENCY AND SAVINGS

PAGE 3: ADEQUATE SPACE AND EQUIPMENT INSTALLATION



KR PUTS REVIT® MEP TO THE TEST AT FAIRFIELD UNIVERSITY

New Village Apartments and Dolan Hall, Fairfield University, Fairfield, CT

The planned construction of New Village Apartments and the renovation of Dolan Hall (Newman Architects), an existing dormitory, together represent part of Fairfield University's campus-wide housing initiative. Consisting of approximately thirty individual units, the New Village would increase living space by nearly 68,000 square feet and accommodate nearly 180 students. Similarly, Dolan Hall would provide approximately thirty 4/6-bedroom units totaling 76,000 square feet.

Kohler Ronan's team has already designed Mechanical, Electrical, Plumbing and Fire Protection systems for the buildings to accommodate the anticipated construction and renovations. Early in the design process, it was imperative to the architect that ceiling heights were established in the main corridors of the building. Utilizing Revit® MEP's layout and sizing tools, Kohler Ronan was able to route the main ductwork distribution, fire protection and plumbing mains, as well as electrical conduits in plan view. Sections were cut at various locations of the corridor which determined minimum

ceiling cavity requirements. With Revit® MEP, these sections could be developed seamlessly at any point along the corridor. Subsequently, incorporating the MEP/FP utilities within the Architectural Revit® model ensured the design team that the architects on the project would base their work on data which reflected the correct ceiling specifications. Any successive changes to the model would be automatically synchronized in each effected view of the model, with no loss of information between the team members.

While Fairfield University already has a good quality utility system (capable of covering its load demands) our designs do include certain sustainable features where feasible. Among these features are low flow plumbing fixtures throughout as well as two roof top mechanical units for New Village. The HVAC system design incorporates a plate heat exchanger to pre-treat incoming outside air. This treatment reduces the size of the coils and subsequent water flow by reducing the temperature difference between the outside air and the specified discharge air serving the building. **K**

COMMITTED TO REVIT® MEP

While many engineering firms remain hesitant to adopt Revit® MEP, Kohler Ronan has made the platform and its software an integral part of our operations. We have committed to both training our staff and acquiring the technology necessary to operate the system.

Not unlike learning any new task, getting up to speed on Revit® MEP can be challenging initially. After many hours of training by certified Revit® instructors, and much independent study and practice, our team has become proficient. Once the program has been mastered, there is no going back.

Further demonstrating our commitment to Revit® MEP, Kohler Ronan has also begun to develop a library of equipment which is not yet available from manufacturers. We plan to expand and enrich this library to the extent that it allows us to better serve our projects and our clients.

PROFESSIONAL DEVELOPMENT



Kohler Ronan, LLC is a registered provider of AIA Continuing Education Credits. As such, our professionals have prepared several presentations on relevant and timely industry topics. In the coming months, we will be available to visit your offices and share these presentations.

To learn more, or to schedule a visit, interested parties should contact Joe Lembo at (203) 778-1017 or via e-mail at krce@kohleronan.com.

MAXIMIZING EFFICIENCY AND SAVINGS VIA NATURAL VENTILATION

Southern Kentucky Performing Arts Center, Bowling Green, KY

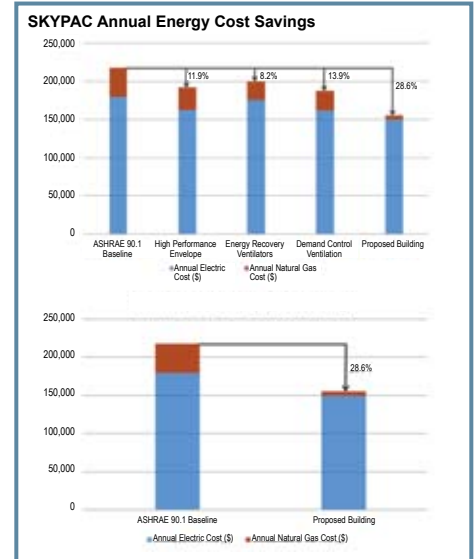
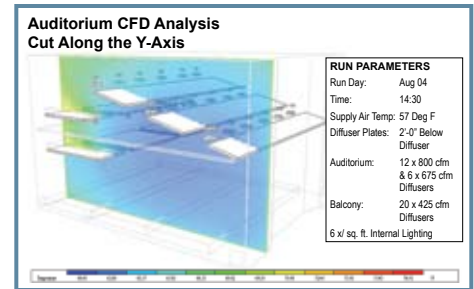
The Southern Kentucky Performing Arts Center (Holzman Moss Architecture) will incorporate an 1,800-seat proscenium theater and associated support spaces, including a rehearsal hall, a dance studio, music practice rooms, and community accessible classrooms. The theater itself, the lobby, and administrative office space, together occupy nearly 70,000 square feet of area and total an estimated \$21 million in construction costs.

Our team of professional engineers is currently designing Mechanical, Electrical, Plumbing and Fire Protection systems for this impressive space. We are coordinating with acoustical and lighting consultants to address the key issues specific to performing arts venues. Our systems will strive to incorporate flexibility, efficiency and invisibility.

Sustainable design elements are also being considered for this project to the extent that they will contribute

to the building's performance. Specifically, our team conducted a Natural Ventilation and Computational Fluid Dynamics (CFD) Study. Our aim was to determine what, if any, free cooling we might obtain throughout the year and via what methods. Our team investigated the possibility of installing louvers in the lobby area of the performing arts venue. First, we set about reviewing weather data and thermal comfort. Second, we needed a wind study and solar profile of the geographic area. After a thorough analysis facilitated by Integrated Environmental Solutions (IES) software and Revit® MEP, we concluded that in fact Natural Ventilation of the Lobby would be possible during the swing seasons, that is March-May & October-November. Further, we were able to be specific about intake and exhaust louver positioning to maximize benefits. The louvers would work automatically and be tied to the overall building management system (BMS) but have a

continued on Page 4



REVIT® MEP AIDS IN ENSURING ADEQUATE SPACE AND PROPER EQUIPMENT INSTALLATION

Dover Anchor Library, Dover, DE

Taking steps to address some space and technology issues, as well as to anticipate future growth, the City of Dover, the State of Delaware, and the Library elected to construct a new state-of-the-art facility. The proposed Dover Anchor Library (Holzman Moss Architecture), to be located in Dover's downtown historic district, will consist of approximately 52,000 square feet providing increased collection space, meeting spaces, training

rooms for staff and the public, a large children's department, a teen zone, an adult services center, a cybercafé, a gallery, an auditorium, an outdoor performing arts area and of course, ample parking.

Kohler Ronan Consulting Engineers is providing a full array of Mechanical, Electrical, Plumbing and Fire Protection design services to complement the architectural plans. Our team utilized Revit®

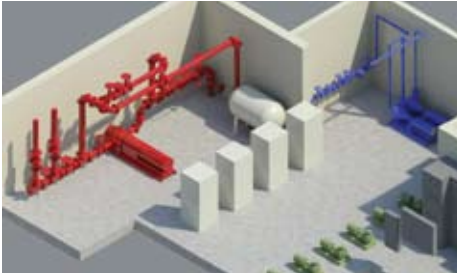
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GETTING IT RIGHT AT SCHEMATIC DESIGN

Determining the MEP/FP space required early in the schematic Design Phase is critical. It decreases errors and costs, while increasing productivity.

“Ensuring Adequate Space” continued from Page 3

MEP to create the preliminary layouts for the Mechanical, Electrical, Plumbing and Fire Protection equipment. Based on the architects’ 2-D layouts, we created a 3-D model of the spaces for each major piece



of equipment; in so doing, we ensured that spaces were adequately sized to accommodate all of the proposed MEP/FP equipment. We were then able to coordinate room size layouts with the architect very early on and be confident that they would be installed as indicated. Kohler Ronan delivered a comprehensive schematic drawing package to the architect that included space requirements, sections and isometric views. The benefits of being able to create a complete package like this, so early in the process are realized by all members of the design team.

The Dover Anchor Library project has also afforded Kohler Ronan the opportunity to put our sustainable design capabilities to work. The project currently includes an under-floor air delivery system, geothermal heating and cooling, ice storage, daylighting controls, solar PV panels and low flow plumbing fixtures. Each of these items contributes to long-term savings for the owner. Needless to say, their impact on the environment is also favorable. **K**

“Maximizing Efficiency” continued from Page 3

manual override feature. In all, the cost savings to be gained through the use of louvers can be as much as 6% annually.

Also incorporated within the scope of this study was a close look at how air would flow through the space. Again, utilizing the latest technology, our team was able to specify certain parameters, run multiple models and analyze the results. We considered the temperature of the supply air entering the space, the location and positioning of diffusers and diffuser plates, the presence of internal lighting and the like. We wanted to avoid the

all too common situation in which for one portion of the theater to be comfortable, other areas must be uncomfortably hot or cold. The end result of these simulations is that we can ensure that the correct mechanical systems are designed and installed so as to most efficiently heat and cool the entire space year round. At all times, Kohler Ronan seeks to enhance the architectural and theatrical vision of the space and minimize the impact of engineering wherever possible. In this instance, Revit® MEP and BIM are helping us achieve these goals. **K**

ABOUT THE FIRM

Kohler Ronan, LLC Consulting Engineers is a multi-disciplined firm dedicated to providing exceptional Mechanical, Electrical, Plumbing and Fire Protection engineering design services. From our offices in Danbury, CT and New York, NY, we collaborate with prominent architectural firms on a wide array of regional and nationally recognized project assignments.

Commissions include those for world renowned Museums, Fine and Performing Arts Centers, as well as prestigious Universities, state-of-the-art Educational facilities, Luxury Residences and Recreation establishments.

Additionally, we have the privilege of designing specialty systems for Landmark sites and historically significant buildings across the country.

For more information, please visit our website at www.kohlerronan.com.

LOOKING AHEAD...

We do not need a crystal ball to foretell that the use of Revit® MEP and similar technologies will continue to grow in both wide-spread use and sophistication. While Revit® products are commonly used among architects, many engineers remain hesitant to invest both the financial resources and training time required to become proficient in this product. In some respects the learning curve is steep; however, Kohler Ronan is confident that the long-term payback on our investment will be great. The market is

already demanding tighter control of the design process, increased productivity, reduced costs and energy savings, along with greater sustainability goals. Kohler Ronan is committed to Revit® MEP and any future technologies that place us at the forefront of our industry. Looking ahead, we see Kohler Ronan not only meeting the challenges of this industry, but anticipating them. In being proactive in this way, our firm will continue to deliver superior service and value to our clients well into the future. **K**



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