

## **Technology Fee Concept Paper Proposal Template**

**Title:** Building Information Modeling Immersive Visualization Lab

**Proposer:** R. Raymond Issa, Ph.D., J.D., P.E., F.ASCE

**Sponsoring Organization:** Rinker School of Building Construction/College of Design Construction and Planning

**Purpose:**

The Construction industry is a \$4 trillion a year worldwide industry. Over the past 5 years Building Information Modeling (BIM) has emerged as the most significant new trend since the development the PC and 2D CAD in the 1980s. BIM is on a quick path to changing the construction industry the way we know it today and is likely to result in a reduction in the cost of rework which currently is at about 26% of the total volume of work. BIM provides the user with the ability to model a building once and analyze it many times for a variety of purposes including structural loads; blast, hurricane and earthquake simulations; and day lighting, thermal and noise analysis for sustainable design. Construction modeling takes place during the pre-construction stage allowing the builder to construct the building in virtual space thus working out all the issues not addressed in the design stage and firming up the materials, means and methods that they are going to use in the construction phase. Furthermore, the model becomes a mainstay of the facility management lifecycle of the building.

As result of all these advances, there is an increasing demand for BIM savvy graduates of the BCN program which we are trying to meet by integrating BIM across the curriculum. Leading edge companies are starting to outfit their jobsites and regional offices with 3D projection screens to display their models; induce collaborations among the design and construction entities and facilitate the pre-construction process. The International Code Council is studying the adoption of using these building models to do code checking and to issue a construction e-permit thus streamlining the way we building permits are issued. Designers are getting involved in construction worker safety issues during the design process by using BIM to check their designs for safety issues. The BIM revolution is upon us and we need to prepare our students to meet this technological challenge. Upgrading our computing facilities and adding a BIM visualization lab in the adjacent space will enhance both the faculty's ability to teach BIM across the curriculum and the students' ability to understand and use BIM.

**Impact/Benefit:**

The Rinker School of Building Construction has 22 faculty members, 600 undergraduate students; and 160 graduate students. The Rinker School graduates over 180 students each academic year. In the current depressed construction market, both students and companies are looking for a competitive edge. We feel that being BIM savvy is the competitive edge that will lead our students to jobs and our alumni to success in the construction industry of the future.

The impact and benefit of the proposed BIM facility are many:

1. It will allow our students to graduate with improved skills that are in great demand in the construction industry.
2. It will allow our faculty to familiarize themselves with and integrate BIM across our construction management curriculum.
3. It will allow our students to simulate and visualize the construction process at the component level and better understand how structures fit together.
4. It will allow our faculty to integrate and visualize time (4D) and cost (5D) in the curriculum, which will allow the students to simultaneously visualize the productivity, duration and monetary and environmental cost associated with the use of certain construction materials and techniques.

**Sustainability:**

Currently, the Rinker Schools employs a systems programmer who is responsible for the operation of our instructional computer lab. The computer lab has 32 work stations. The stations need to be upgraded to handle the enormous computational and graphic capability required for running BIM software. The system programmer will also be responsible for the operations of the remodeled space required for operating the BIM Immersive Visualization lab.

**Technology Fee Concept Paper Proposal Template Preliminary Budget**

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**BUDGET**

Remodel existing space merging RNK 201 and RNK 202.	35,000
Upgrade existing laboratory computers (32) to meet BIM specification	64,000
Procure Immersive BIM environment hardware and software	<u>95,000</u>
	194,000

**Technology Fee Concept Paper Proposal Template Sponsor Signature Form**

<b>Title:</b> Building Information Modeling Immersive Visualization Lab
<b>Proposer's Name:</b> R. Raymond Issa, Ph.D., J.D., P.E., F.ASCE

<b>Note:</b> By signing this form the sponsor is making a commitment to support the project if selected for submission of a full proposal. This may include providing startup or recurring resources, but at his time no specific commitments are made.	
<b>Signature of sponsor:</b> College Dean, or Unit Director, or VP for Student Affairs.	
_____	_____
<b>Name and Title</b>	<b>Date</b>

<b>Note:</b> By signing this form the UF IT unit is making a commitment to manage the project if selected for submission of a full proposal. This may include providing startup or recurring resources, but at his time no specific commitments are made.	
<b>Signature of managing unit administrator:</b>	
_____	_____
<b>Name and Title</b>	<b>Date</b>