

BIM FOR SUSTAINABILITY – 7D

Presenters

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About the speakers

About Microdesk

- **Our drive _ Globalization, Urbanization, Sustainability**
- **What is sustainability?**
- **Sustainable development goals & the AECO industry**
- **What is the issue???**
- **The barriers & objectives**
- **Impact of early stage decision making**
- **Life cycle costs during O&M**
- **What are the barriers?**
- **Sustainable objectives?**
- **Budgets, ROI & incentives**

- **Awareness of clients & design team**
- **Timeframes & workflow**
- **Tools, tool capabilities & interoperability**
- **Design option management**
- **Result visualization & trade-off studies**
- **Decision making criteria**

WHAT IS ACHIEVABLE?

- **Single Source of Truth**
- **Streamlined Design & Analysis**
- **Parameterization/Problem Formulation**
- **Design Automation & Optioneering**
- **Multi-Objective Design Optimization**
- **Support Early Stage Design Decision**
- **A Digital Twin for O&M**
- **Microdesk's mission is to provide the optimal workflow and approach that tailor to your practice goal**

CASE STUDIES

PERFORMANCE ANALYSIS

BUILD HEALTH INTERNATIONAL (BHI)

THE PROJECT:

Carrefour, Haiti

15,000 SF

6-12 hours reliable electricity

Steeply sloped site

HIGH fuel costs

LIMITED fuel, power, and water supply

LIMITED budgets & construction material access

SCOPE OF WORKS:

Revit Massing

Revit Modelling

Multiple INSIGHT ENERGY ITERATIONS

DAYLIGHTING Analysis

SOLAR INSOLATION

ILLUMINANCE

PV ANALYSIS

THE RESULTS:

INCREASE LONGEVITY of the building via lowering maintenance and future construction costs

Produce OPERATING BUDGET SAVINGS

ENERGY & LIGHTING EFFICIENCY

DESIGN AUTOMATION & GENERATIVE DESIGN

THE PROJECT:

NRG & ASTRODOME MASTER PLAN

Houston, Texas

Mixed Use Complex with Multi Family above and retail spaces below

Reduce Cost to Owner

In the idea to pass some savings along to renters

Make a more desirable community that will easily attract tenants

Provide Live Work Play atmosphere

Provide walkability and connections to future development plans

SCOPE OF WORKS:

Climate Analysis

Initial Predicted Energy Intensity (EUI)

BENCHMARKING

SOLAR STUDY for Siting Decisions

HURRICANE SIMULATION

THERMAL STUDY: Validating the Cost of Construction

Insulation

LIGHTING ANALYSIS: Identify, Investigate, Implement
PASSIVE DESIGN: Shading Devices - Awnings

THE RESULTS:

40 hours work

We were able to REDUCE the cost per square foot through shading strategies

We further REDUCED cost per sq utilizing generative design process

SAVE cost on materials

LOWERED pEUI with design strategies setting us up for Systems analysis and Engineer engagement

Produced 3 Benchmarks to validate reductions

Still Undergoing!!!

THE PROJECT

CONNECT THE DOTS – IOT, MONITORING & DIGITAL TWIN

CONNECTED DATA

Health Care System

Philadelphia, PA

EXEMPLIFY the FUTURE of the Health Care Facility

Integrate the new building data into the existing

Enterprise Maximo System

**Development of the Facility Maintenance
Functional Requirements
Basic integration with BAS for Asset Performance
Monitoring**

**DATA MIGRATION: Data Dictionary Development,
Data Migration, Data Gap Identification
Work Management & Reporting
DATA INTEGRATION: BIM + BMS
ASSET PERFORMANCE MONITORING**

**Microdesk ARID® ENABLED organizational wide
data dictionary management system
Microdesk ModelStream® STREAMLINED data
migration from PIM to AIM
IBM Maximo + Monitor INTEGRATE AIM & BMS
and FACILITATE FM Operation & Monitoring**

ARID

DATA MANAGEMENT

- Intelligent cloud-based solution helps reduce the effort required to manage asset data

- Facilitate streamlining the data flow interoperability from delivery to operational stage

BEEM

Sustainable Attributes

- Organized and comprehensive data attributes mapped to each correlated performance indicator
- Facilitate the mapping between BAS & CMMS and support sustainable O&M

BIM 2 FM

Streamlined Dataflow

- Microdesk ModelStream® streamline data migration from PIM to AIM

Monitoring

AI Driven Management

- Provides a wealth of data for predictive asset maintenance
- Serves as the foundation for AI-based building performance prediction
- Dashboard configuration for real-time feedback operation

OUR APPROACH

ARID

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SUMMARY + BENEFITS

INTEGRATED DIGITAL DELIVERY

BIM 6D

BIM ENABLED

GREEN BUILDING BENEFITS

GENERATIVE DESIGN BENEFITS

NEXT STEPS

WHAT

WHY

WHY - AECO INDUSTRIES IMPACT

HOW

LEAN ON MICRODESK

CALL FOR ACTION

Standards

Obligations

Shared Ethics

Credit Sharing

Transparency

Fresh Input

Aligned Goals

Sharing Knowledge & Experience

Discover New Approaches & Tools

Confidence to Innovate & Collaborate

Open to Lean & Learn from Others

TAKE RESPONSIBILITY

SKILL

Reducing our levels of consumption will not be a sacrifice but a bonus if we simply redefine the meaning of the word 'success.'

- David Wann

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