AUTODESK

Celebrating a decade of infrastructure excellence

With a growing world population, these innovative projects and teams demonstrated new ways of advancing BIM solutions by leveraging cloud and data capabilities to meet tomorrow's ever-increasing resource and transportation challenges.

India, 2020 AEC Excellence Winner

Chandrawal Water Supply Project 477 MLD Advanced Water Treatment Plant

RWS and UWWM-EDRC, WWW SBG, WET-IC, L&T Construction

OUTCOME

Designing a Lifeline in Limited Space

Delivered uninterrupted water supply to 2.3 million water-stressed inhabitants by integrating the new plant to existing water treatment plants with 50% less site space needed.

PROJECT

Water Treatment Plant

The 477 MLD Advanced Water Treatment Plant—an engineering, procurement, and construction project—was built with solar-power generation and is a first of its kind for ozonized disinfection in India.

Image courtesy of L&T Construction, Water & Effluent Treatment-IC

HIGHLIGHTS

The team realized **20% TIME SAVINGS** on a tight schedule.

Concurrent design and engineering **SAVED $300K.**

The project used **50% LESS SPACE** compared to plants of similar output.

IN THEIR OWN WORDS

"For the Chandrawal Water Supply Project, we had less than half the space typically required for a plant with this level of output. We could only approach this challenging infrastructure design by using BIM."

— M. Balasubramani, General Manager and Head of WSD - EDRC, Water & Effluent Treatment IC L&T Construction - India

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China, 2019 AEC Excellence Winner

Engineering of Luchuan Service Area of Yulin-Zhanjiang Expressway (Guangxi Section)

Tianjin Port Engineering Design & Consulting Company Ltd. of CCCC First Harbor Engineering Company Ltd.

OUTCOME

A BIM in the Cloud Pilot Success

3D visualization and clash detection solved many issuesat the design phase. Multidisciplinary teams from road to station collaborated uniformly to optimize the design.

PROJECT

Highway Network

The 74.5-km project is comprised of a two-way, four-lane expressway with seven toll stations, two service areas, and one parking area, optimized for traffic flow, energy consumption, air conditioning, and thermal insulation.

Image courtesy of Tianjin Port Engineering Design & Consulting Company Ltd. of CCCC First Harbor Engineering Company Ltd.

HIGHLIGHTS

Identified and **RESOLVED OVER 100 ISSUES** with clash detection.

1 CLOUD MODEL was used across multidisciplinary teams.

IN THEIR OWN WORDS

"The application of BIM technology in PPP projects is not only to realize the digitalization and informatization of the whole lifecycle of traffic engineering but also to build a data-sharing platform and carrier for all participants in the project."

— Yan Wang, Chief Engineer, Director of BIM Technology Center Tianjin Port Engineering Design & Consulting Company Ltd. of CCCC First Harbor Engineering Company Ltd.

Turkey, 2019 AEC Excellence Winner

Ümraniye-Ataşehir-Göztepe Metro Line

Gülermak Nurol Makyol Joint Venture and Yuksel Proje Inc.

OUTCOME

Visualizing Underground Structures

The project combined data from drones and survey equipment with a BIM model to accurately analyze, visualize, and optimize the planning, designing, and building of underground stations. Discrepancies were detected before construction, and stakeholders were well informed.

PROJECT

Transportation Metro Line

Opening in 2022, the Ümraniye-Ataşehir-Göztepe Metro Line will be 13-km long and connect 11 underground stations across the city of Istanbul, overcoming population density, existing infrastructure, and historic preservation and environmental constraints.

Image courtesy of Yuksel Proje Inc.

HIGHLIGHTS

Project planned and designed in **1 BIM PLATFORM.**

Using BIM resulted in **16% COST SAVINGS** across the project.

35% CABLE LOSS and **15% OF TRACTION POWER TRANSFORMER LOSS** was avoided using BIM.

IN THEIR OWN WORDS

"The Ümraniye-Ataşehir-Göztepe Metro Line has been meticulously planned and designed using the BIM platform. We hope it'll serve as an example for similar projects."

— Gamze Çiçekoğlu, Team Leader, Gülermak Nurol Makyol Joint Venture

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Colombia, 2018 AEC Excellence Winner

MIB – Micro-Scale Urban Planning Methodology

Empresa Desarrollo Urbano de Medellín (EDU)

OUTCOME

Micro-Scale BIM Meets Rapid Urbanization

The EDU analyzed and integrated real-world GIS data with BIM to create models that could be accessed in the field to make real-time planning, design, and build decisions with community input.

PROJECT

Urban and Rural Planning

For people living in dangerous areas at risk of landslides, planning safer communities meant providing resilient homes and access to transportation, sanitation, and parks. Giving residents the ability to contribute to the process resulted in a better, safer design and services.

Image courtesy of Empresa de Desarrollo Urbano

HIGHLIGHTS

The planning process used **45% LESS TIME with BIM.**

The housing is **28% MORE EFFICIENT** based on building models.

IN THEIR OWN WORDS

"For public planning at any scale, 3D visualization can play an important role in communicating with people. It provides a clear basis to share ideas and to gather feedback. Decision-making becomes more collaborative."

— Nicolás Rivillas Hincapié, Assistant Director of Design and Innovation, Empresa Desarrollo Urbano de Medellín

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USA, 2013 AEC Excellence Winner

Denver International Airport Hotel and Transit Center Program

HNTB and Gensler

OUTCOME

A Bigger Vision for BIM

Looking for "facility management ready" as-built models to improve asset performance and energy conservation, an ambitious airport-wide BIM conversion was kicked off. BIM was used throughout the asset lifecycle, improving ongoing facility management and maintenance.

PROJECT

Airport and Transit System

The airport expansion connected a commuter rail transit center, a 519-room hotel, an open-air plaza, and a train station to the main terminal while also incorporating maintenance and sustainability goals.

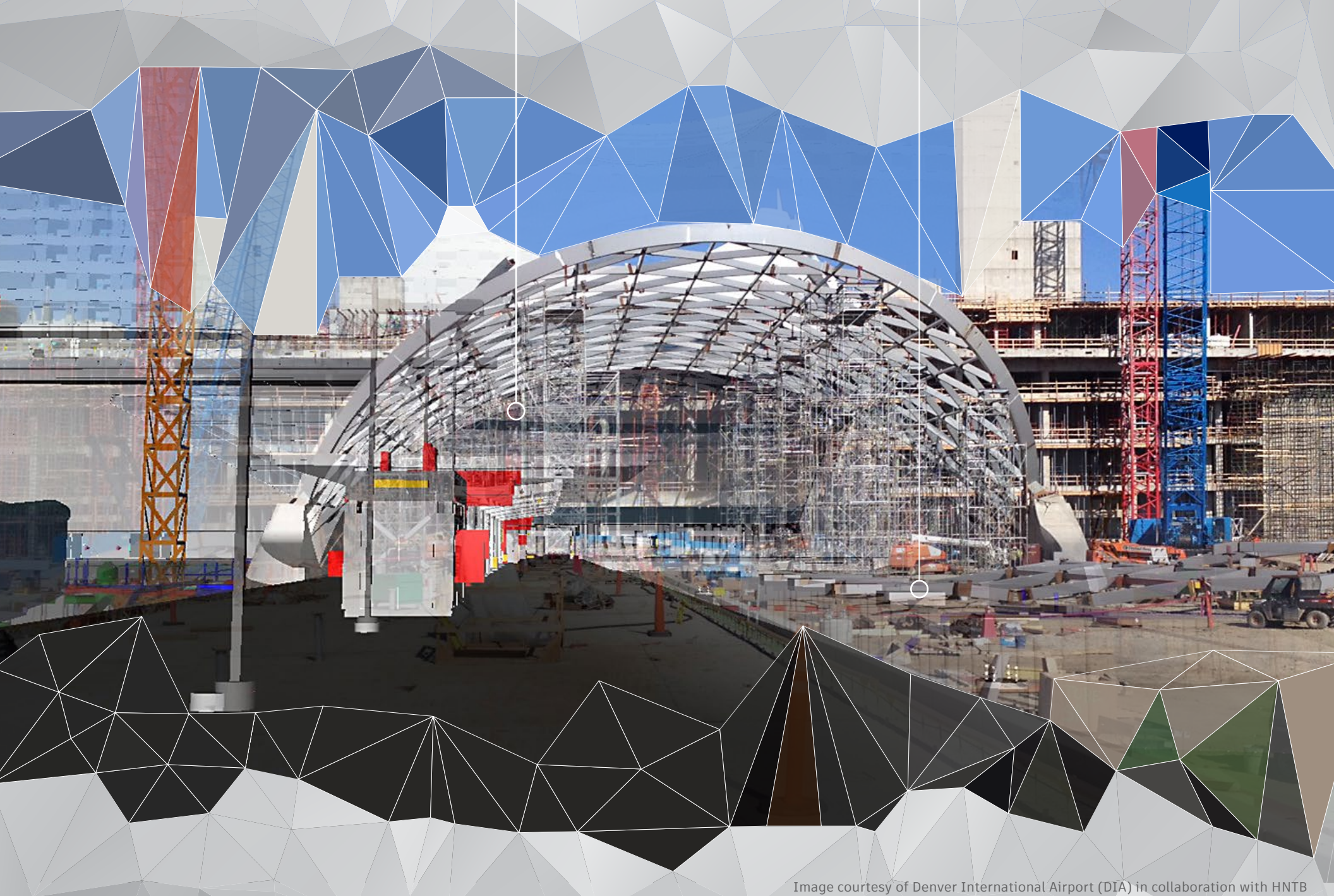

Image courtesy of Denver International Airport (DIA) in collaboration with HNTB

HIGHLIGHTS

Over **9 MILLION CAD FILES** cataloged in one place.

More than **40 DESIGN MODELS** were used by 25 firms.

25 DISCIPLINES were represented across 10 construction firms.

IN THEIR OWN WORDS

"BIM not only created a centralized system for managing the Hotel and Transit Center throughout its operational life but is also providing Denver International Airport with a framework to deploy BIM facility-wide [to] facility operations and maintenance."

— Julie Weinberg, Denver International Airport

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