

AVEVA E3D 주요 기능과 활용법

CAD and Graphics 2020

AVEVA Korea

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- EPC 고객사를 위한 E3D만의 장점
- E3D를 통한 비즈니스 기대 효과

AVEVA E3D의 비전과 로드맵 소개

AVEVA 주요 이력

AVEVA

- 1967 영국 국책사업으로 Cambridge 대학과 연계하여 CADCENTRE 설립
- 1974 Plant Design Management System (PDMS) 상업용 출시
- 1983 국영기업에서 주식회사로 전환

- 2004 Tribon 인수 합병과 동시에 AVEVA Marine의 출시로 Oil & Gas 시장부분과 조선 시장의 95%이상의 시장 점유율 확보
- 2008 P&ID-3D Integration solution

- 2010 Logimatic's MARS와 ADB Systemer AS로 부터 Oil & Gas부문 인수-ERM
- 2011 Z+F UK Ltd. (LFM Software) 인수(우수한 품질의 레이저 모델의 접목을 통한 Retrofit 사업분야의 최고의 시장 점유율 확보

- 2012-E3D 차세대 캐드제품 출시 및 통합 환경의 엔지니어링 Tool 제공
- 2018 - 슈나이더 일렉트릭 소프트와 합병-엔지니어링 솔루션과 O&M 솔루션의 접목으로 인한 거대한 Digital Twin 솔루션 회사로 거듭남



1976
World's first 3D plant design management system (PDMS).
DABACON, revolutionary object-oriented engineering database released.

1973
AVEVA creates platform-independent version of Graphical Input Output software, GINO.

1975
Polysurf and GNC, AVEVA's first software sale, solve the problem of modelling and cutting doubly-curved shapes.

1979
World's first major 3D plant design project (a sugar refinery in the Philippines).
World's first intelligent P&ID (PEGS) launched at AICHEMA.



1988
World's first plant walk-through visualisation system (now AVEVA Review).

1995
Launch of Review Reality featured on the BBC peak-time news programmes.

1996
World's first immersive visual engineering virtual reality centre for plant design.

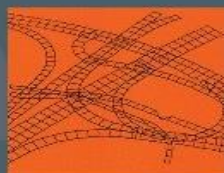


1998
World's first plant design system for concurrent global project execution (now AVEVA PDMS Global).

2009
World's first fully interoperable plant and marine design and production systems.
AVEVA Marine fully integrates ship hull data with the Outfitting database used in plant design.

2014
World's first tablet app for project review and approval any time, anywhere, AVEVA E3D Insight.

50 YEARS OF INNOVATIONS



1992
World's first interactive, full-colour, shaded plant design system.
World's first automatic clash detection system.

1989
PEGS Comparator, first Intelligent P&ID integrated to a 3D plant model.



1997
World's first internet-based collaborative plant design solution (HyperPlant).

2008
World's first open standards-based integration of P&ID and 3D design modelling.
AVEVA ReviewShare, a new collaborative tool for 3D engineering model review.



2002
AVEVA NET introduced aggregating 3D digital asset information compliant with ISO15926 industry information standard.



2012
AVEVA Everything3D, a next-generation plant design solution that enables Lean Construction.
AVEVA Laser Modeller, enabling rapid reverse-engineering of as-built facilities.



2010
World's first automatic generation of finite-element models from 3D marine product models.
Intelli Laser, integrating laser-scanned data into an organisation's asset management strategy.



2017
Solid Pointcloud scanned asset information integrated with AVEVA Engage.

2015
AVEVA Engage, a ground-breaking new class of decision support solution.



2013
AVEVA Activity Visualisation Platform, an immersive, interactive, multi-player simulation tool for plant operations training.
AVEVA Automated Plate Nesting, a best-in-class application for minimising material wastage in shipbuilding.

ASSET

Value chain

Complete digital definition across all elements of design, engineering, construction and production operations

- 설계, 조달, 건설**
- ▲ 조달 관리
 - ▲ 엔터프라이즈 리소스 관리
 - ▲ 프로세스 시뮬레이션 및 최적화
 - ▲ 통합 엔지니어링 및 설계
 - ▲ 통합 조선업
 - ▲ 제조 및 BIM 솔루션
 - ▲ 작업자 교육 및 시뮬레이션
- PRO/II, SimCentral**
Engineering, P&ID, E&I
PDMS, E3D, Bacad
ERM, Procon
AVEVA NET

- 자산 성능**
- ▲ 엔터프라이즈 자산 관리
 - ▲ 산업 워크플로 관리
 - ▲ 예지 분석 및 규정적 분석
 - ▲ 위험 기반 유지보수
 - ▲ 전략 최적화
- AVEVA NET**
Wonderware
Avantis
PRISM



- 계획 및 일정**
- ▲ 영업, 계획 및 일정 수립
 - ▲ 통합 공급망 관리
- Spiral**

- 운영 및 최적화**
- ▲ 고급 공정 제어 및 최적화
 - ▲ 제조 실행
 - ▲ 레시피 및 일괄 처리 관리
- Wonderware MES**
SimSci

- 모니터링 및 제어**
- ▲ 엔터프라이즈 히스토리언
 - ▲ 감시 제어 및 데이터 수집(SCADA)
 - ▲ HMI(Human-Machine Interface)
 - ▲ 개발자 스튜디오 및 툴킷
 - ▲ 모바일 인텔리전스 및 보고
- InTouch, Citect, OASyS**
System Platform

Complete digital definition and orchestration of all elements across production operations

OPERATIONS Value chain

완전한 디지털 Assets 실현

설계, 엔지니어링, 건설 및 생산 운영의 모든 요소에 대한 완벽한 디지털 정의

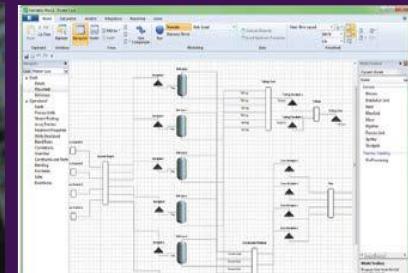
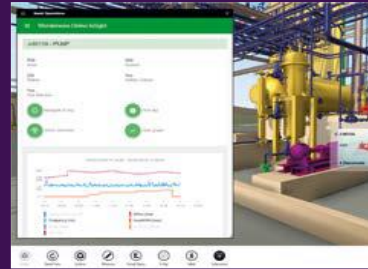
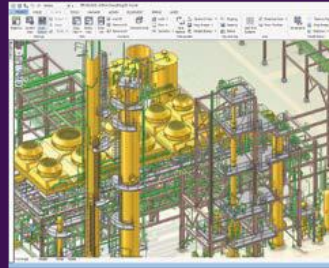
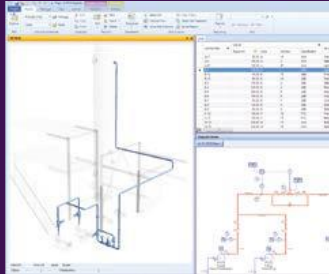
Conceptual design

Basic engineering

Detailed design

Construction & commissioning

Operations



SimSci
ePLMS

AVEVA E3D

AVEVA NET

AVEVA Engineering/P&ID

AVEVA Electrical

AVEVA Instrumentation

AVEVA ERM

Avantis

Wonderware
Citect,
Clear SCADA
OASyS

Wonderwar
Avantis

Spiral

Wonderware

Ampla,
Aquis

SimSci

AVEVA

EVERYTHING3D™

FASTER deployment

INTUITIVE User Interfaces

MOBILE access

RICHER design capabilities

GREATER automation



AVEVA
EVERYTHING3D™

AVEVA EVERYTHING3D™

Update 2



- Bocad Steel Interface
- SDNF Interface

Update 4



- Mining
- Vessel Supports

Update 6



- Trunnion Dimensions
- SpaceMouse Support

Update 8



- Pipe Fabrication
- Cable developments
- Supports Conversion
- Auto Hole sizing

Update 10



- FT100 Frameworks
- Supports to Civils
- Model - Add Within

Update 12



- Alternative SKEY for Supports.

Update 14



- Multi-Project Hole Mgt
- Automatic Cable Routing
- Outfitting Piping

AVEVA E3D 2.1

Update 3



- Multi Port Valves
- Compatibility Updates

Update 5



- Terrain
- CPL Interface
- Configurable Trunnions

Update 7



- IFC Import
- Licad® Hanger Interface
- Simultaneous dressing of Cableways

Update 9



- Cable Developments
- Support Groups
- PSL® and Generic Hanger Interfaces
- Developer Ribbon

Update 11



- Level Gauge SKEY
- Lighting Supports
- HVAC Developments
- Cable Developments
- LFM Server Upgrade

Update 13



- SLH Step Ladders
- Data Reuse
- Automatic Joint Selection

AVEVA EVERYTHING3D™

Update 15



- IFC Export
- AVEVA ERM Interface
- Multi-Copy
- Supports Copy Tool (MDU)
- Intelligent Frameworks

Update 17



- Supports: Max. Slope
- Backstage

Update 19



- AVEVA Design & Eng. Gateway
- ERM Integration

Update 21

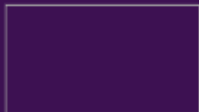


- Bounded Plate

AVEVA E3D 2.1

AVEVA E3D 3.1

Update 16



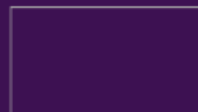
- Maintenance.

Update 18



- Merged Joint.

Update 20



- Maintenance.

Future Updates



- Cable Layout & Visualisation



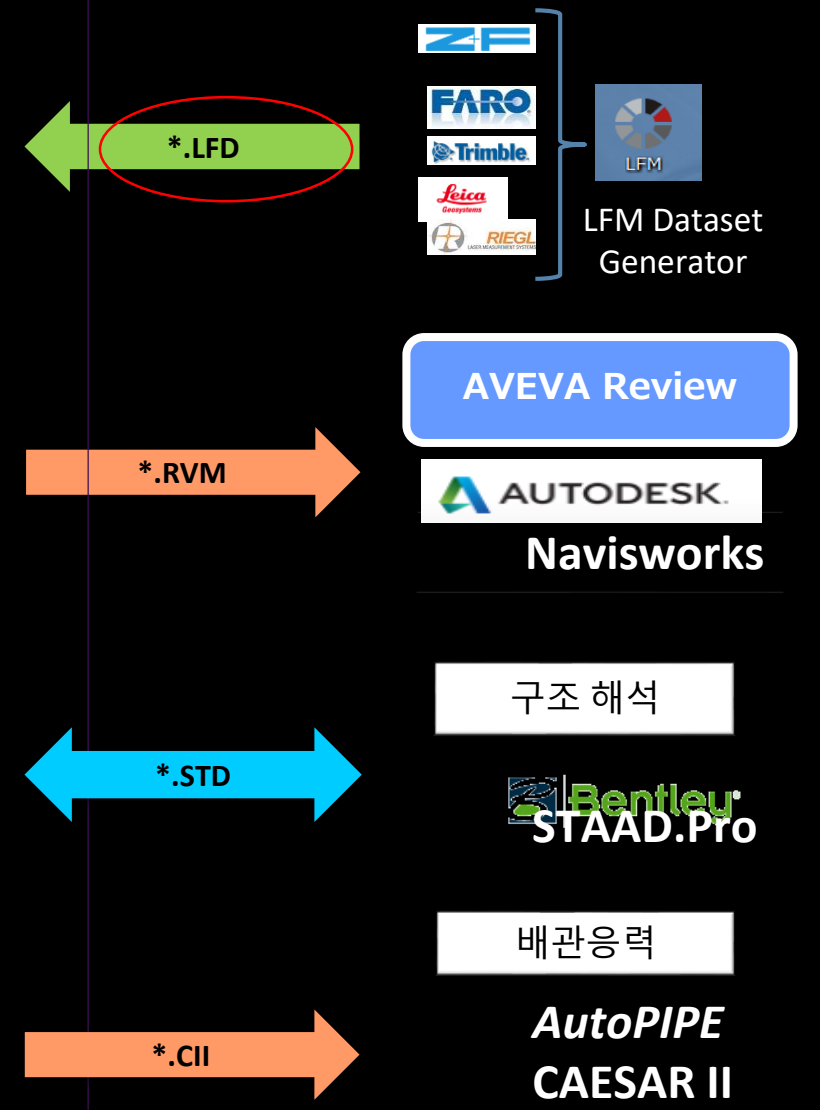
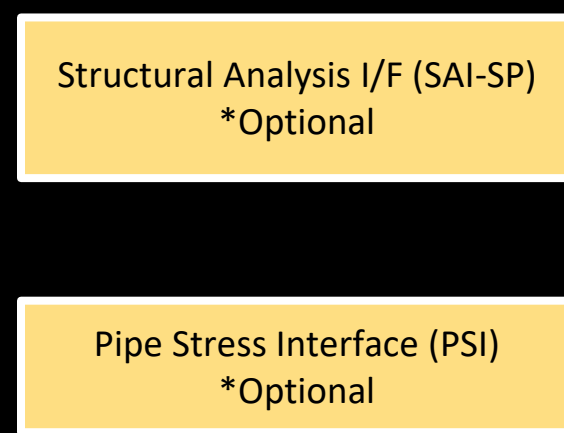
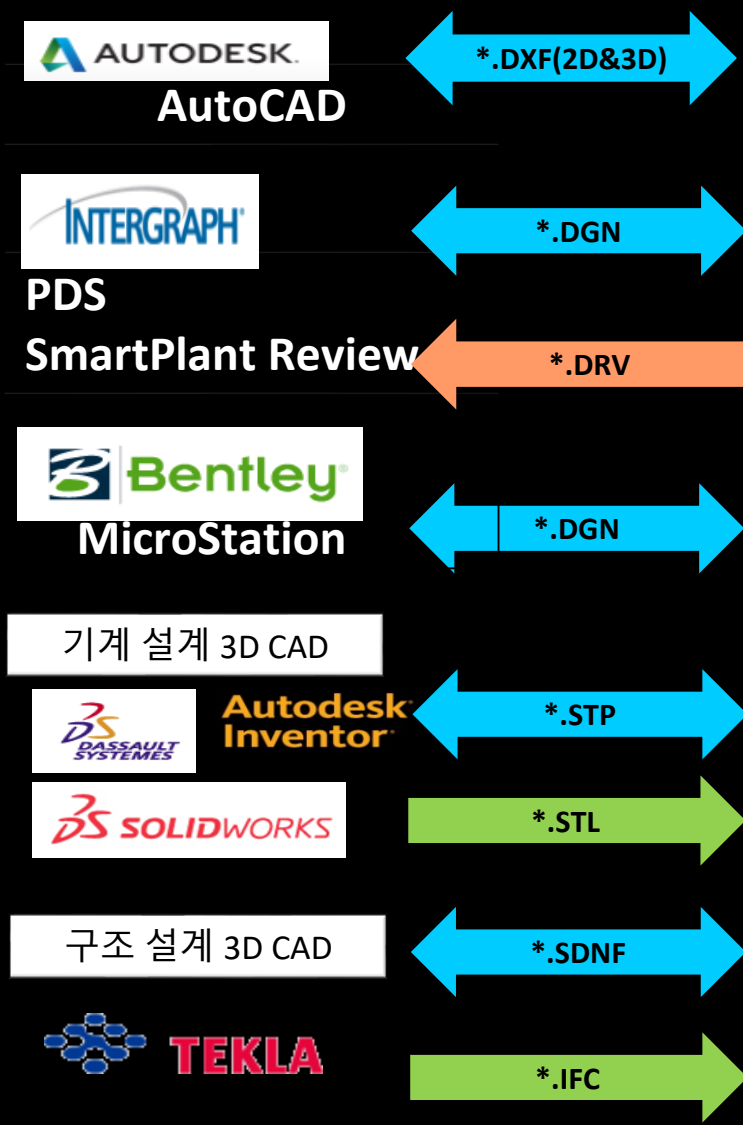
ARF(Engage
Graphic Engine)



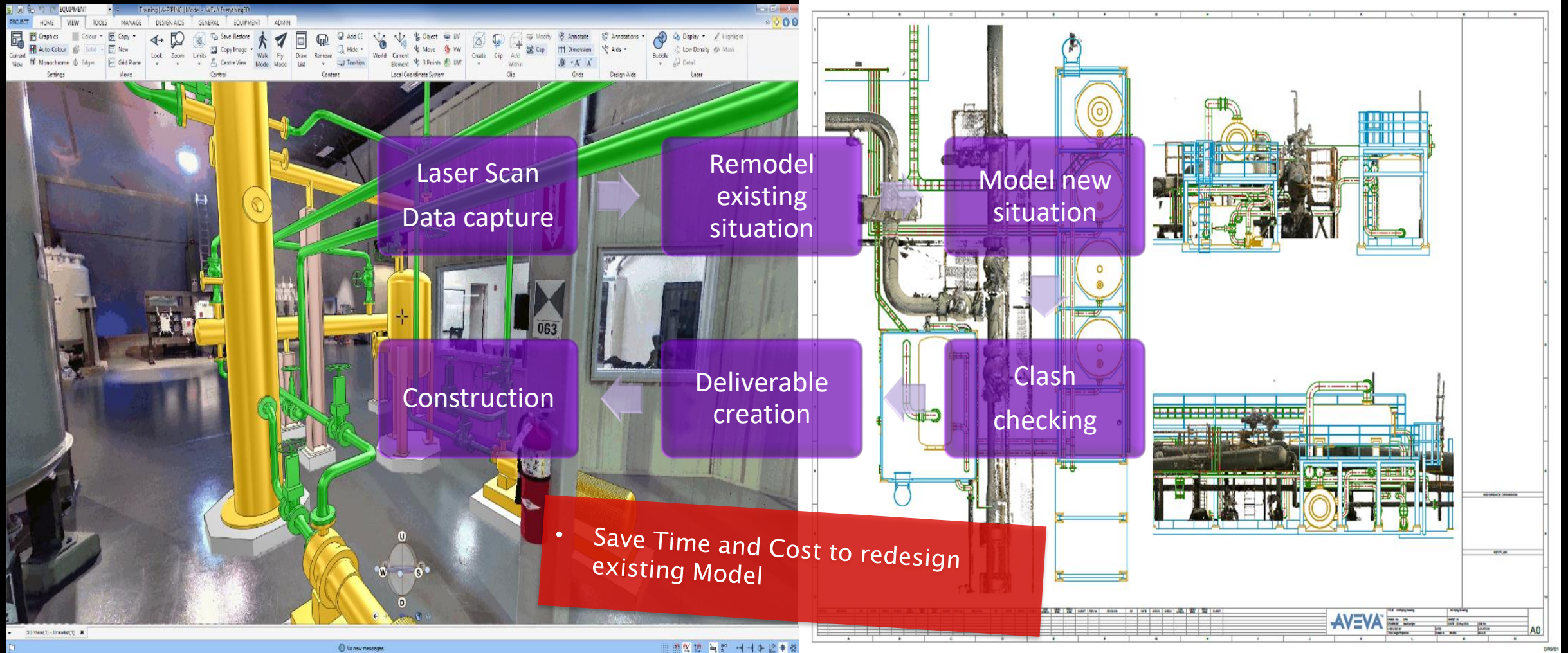
E3D의 PDMS 대비 강화된 기능

DB Integration Map

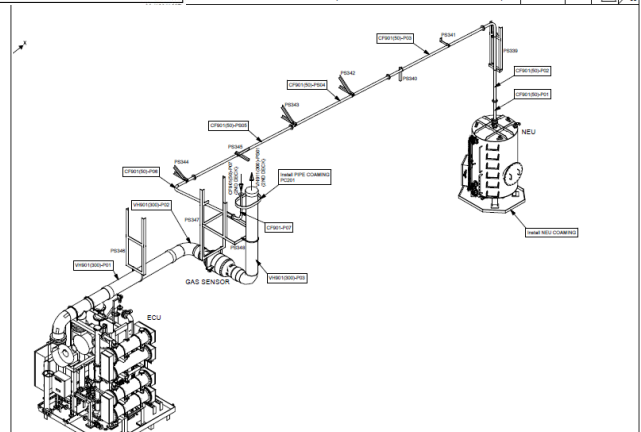
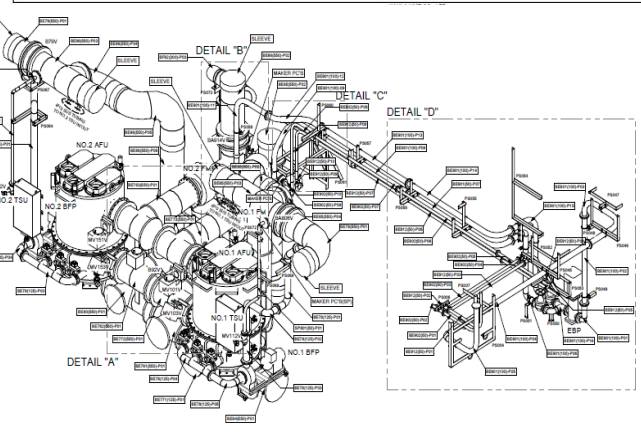
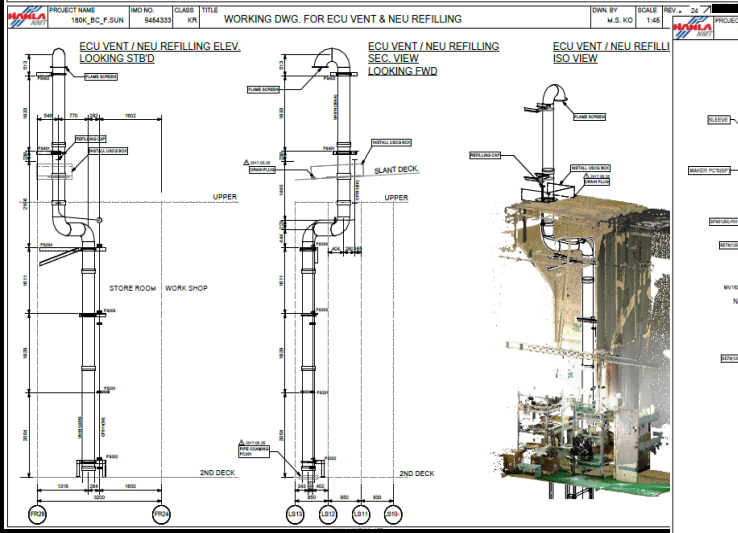
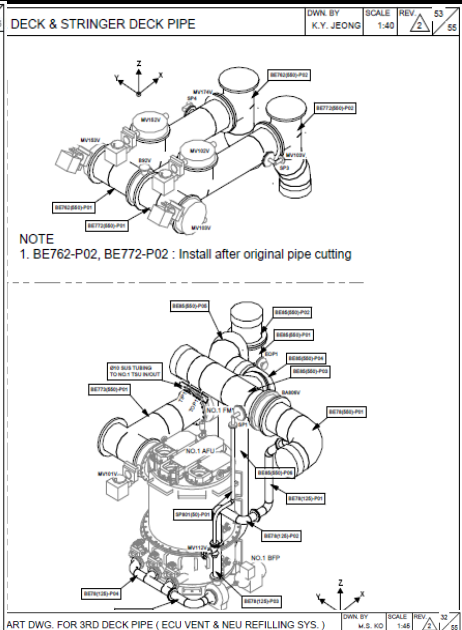
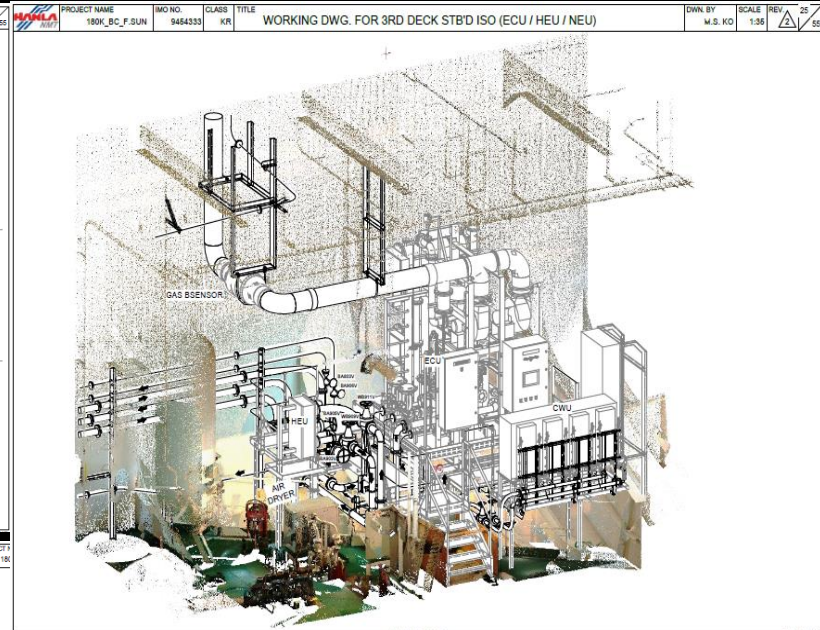
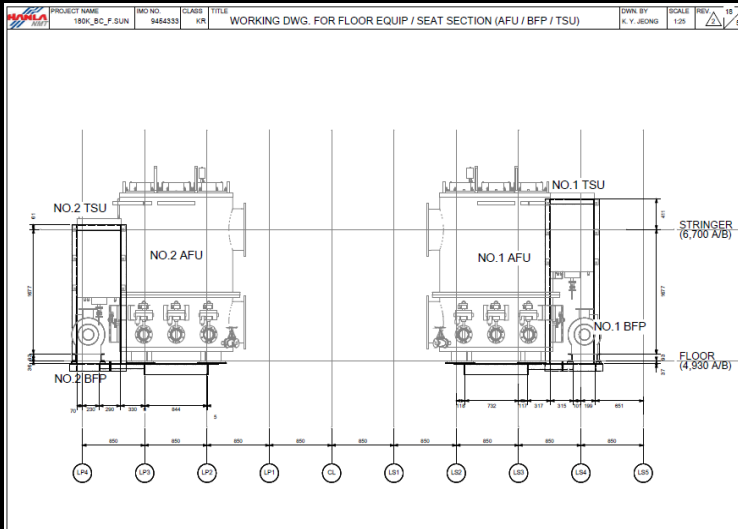
AVEVA Everything3D™



Laser data merged with model



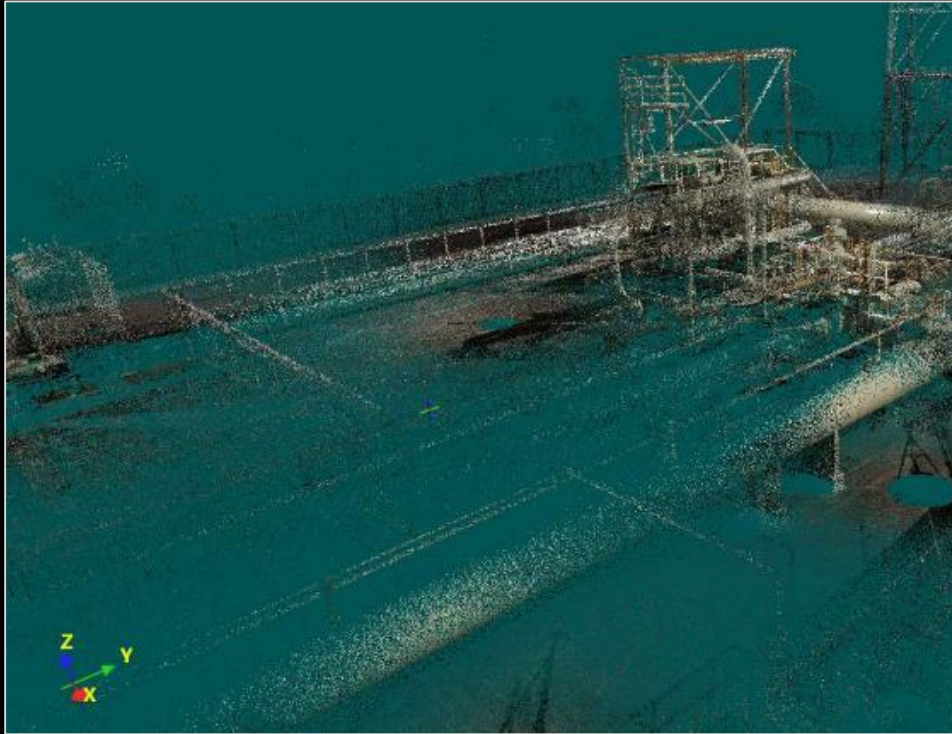
LASER INTERFACE – Model and Drawing

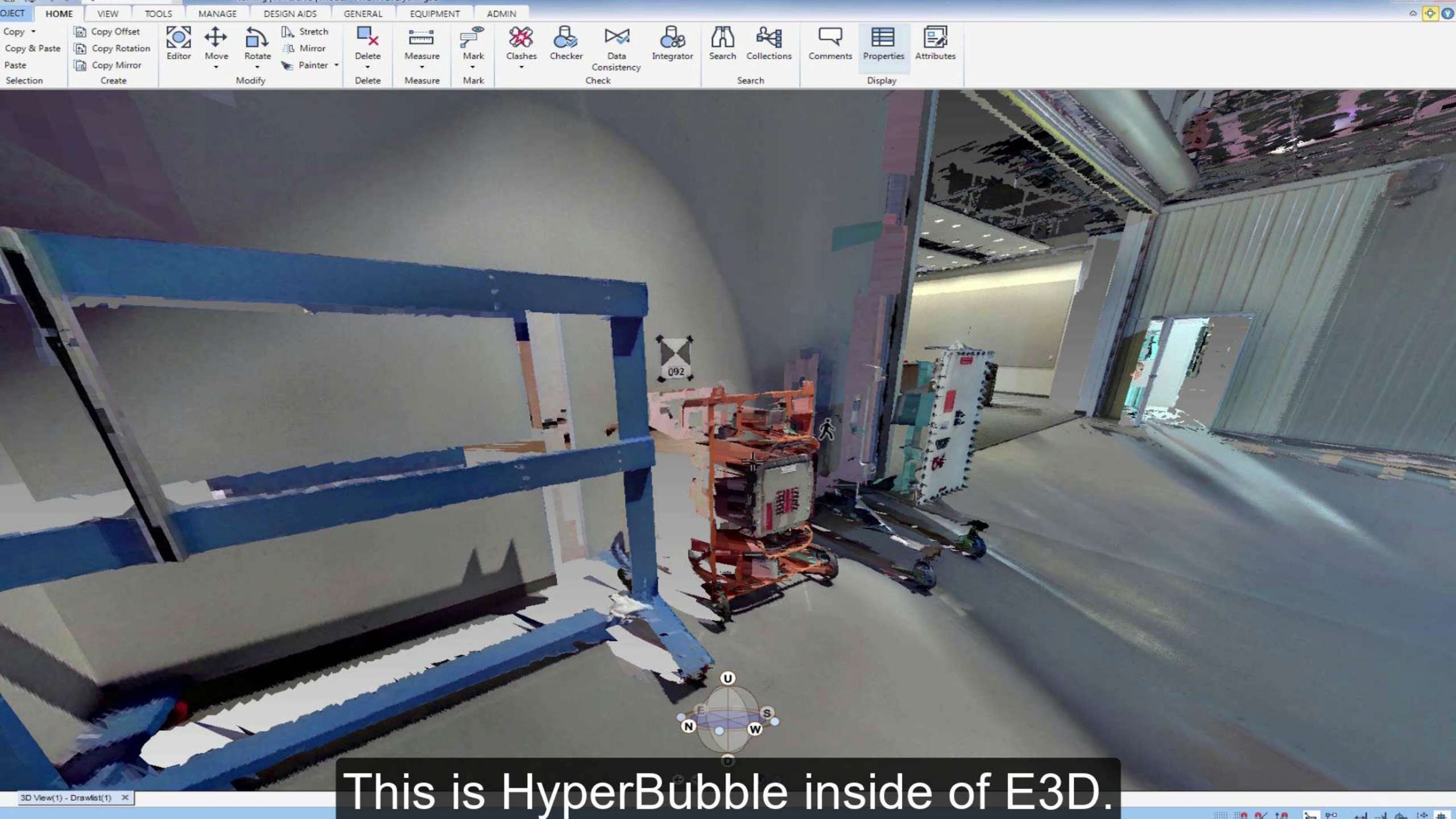


NOTE
1. SLEEVE POINT : Install after original pipe cutting

Solid Point Cloud – 차원 높은 가시성 확보

E3D 3.1 will also include Solid Point Cloud





This is HyperBubble inside of E3D.

Integration - Engineering & Design Data

The screenshot displays the AVEVA PIPING software interface. The top menu bar includes PROJECT, HOME, VIEW, TOOLS, MANAGE, DESIGN AIDS, GENERAL, EQUIPMENT, PIPING, DIAGRAM VIEWER, Flexible Explorer, and ADMIN. The ribbon contains various tool groups such as Pipe, Component, Spec / Bore, Delete, Delete Range, Pipe Router, Slope Pipe, Pipe Splitting, Data Consistency, Integrator Mode, Open Diagram, Penetrate, Isometrics, Pipe Dimensions, Rests, Supports, Modelling, Fabrication NC Data, Pipe Stress Interface, Pipe Stress - Rohr2, Modify PSI Defaults, PSI-Rohr2 Settings, PSI Restraints, Defaults, Settings, and Pipe Fabrication.

The interface is divided into several panes:

- Model Explorer:** Shows a tree view with a selected item '100-B-1'.
- Diagram Viewer:** Displays a 2D piping diagram with various components and connections.
- Compare / Update:** A table showing comparison results between design attributes and engineering database values.

Large, semi-transparent text and arrows are overlaid on the image to indicate the integration process:

- '2D' and '3D' labels with arrows pointing from the 2D diagram to the 3D model.
- 'COMPARE' and 'UPDATE' text with arrows pointing from the 2D diagram to the 3D model.
- '1D' label at the bottom center.

A red callout box in the bottom left corner contains the following text:

- Remove Data Inconsistency
- Remove Design Errors

Account	NAME	Matched	Matched Against	Number of Differences	Chg	Design Attribute	Engineering Database Value	Design Value
	NAME							
	Carbon						100-B-1	

PIPING | ProjAPS | ALL | Model - AVEVA Everything3D

HOME 3D VIEW TOOLS MANAGE ADMIN GRIDS AND AIDS EQUIPMENT PIPING

Common Create Modify

Clashes Checker Delete Pipe Component Pipe Component

Data Consistency Integrator Mode Open Diagram

Pipe Router Slope Pipe Pipe Splitting Tools

Delete Range Pipe System Assembly Manager

NSRC

Pipe Holes Pipe

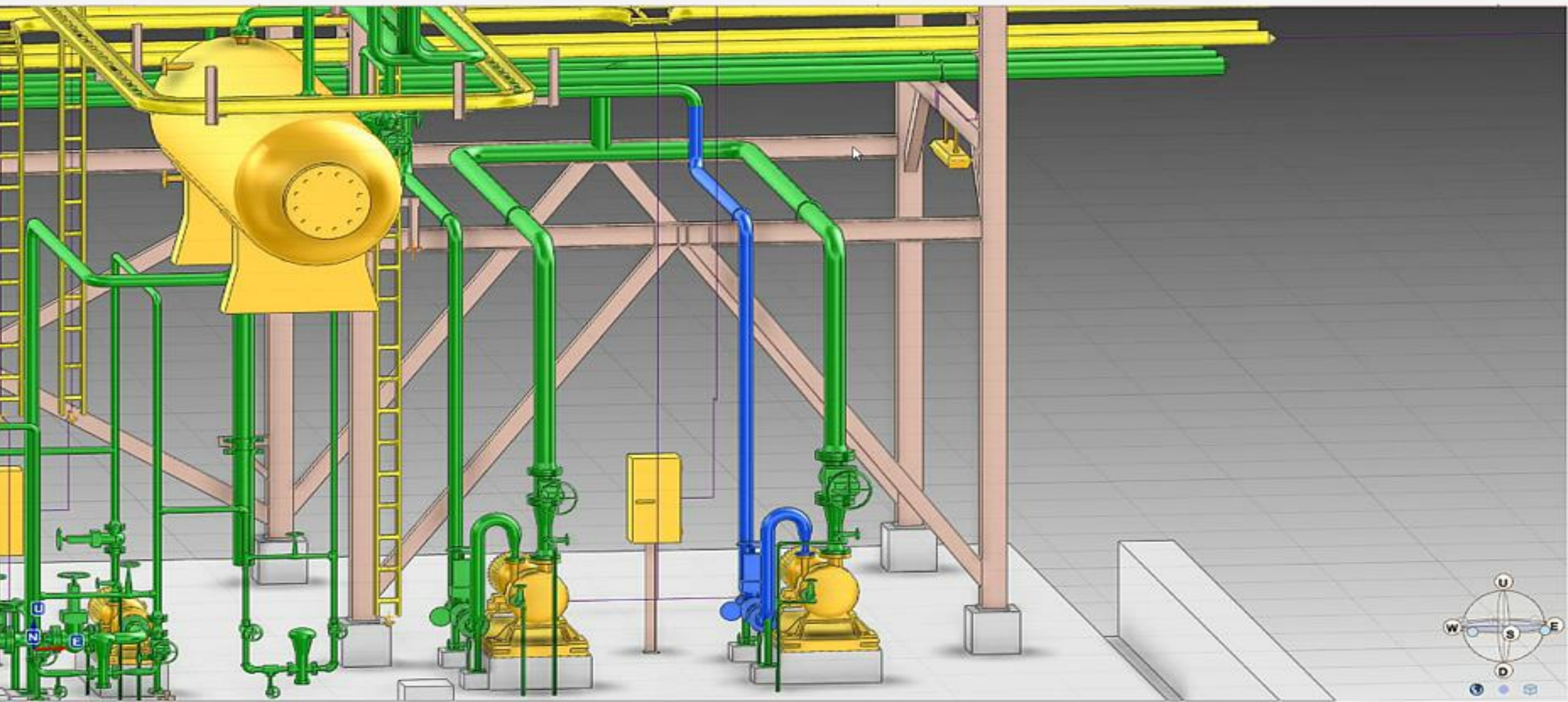
Penetrate Isometrics

Modelling Spooling and Checks Drawings

Export Fabrication Data Fabrication Explorer Configuration

Pipe Fabrication

Pipe Stress Interface Modify PSI Defaults Modify Restraint Attributes PSI



New(?) - DrawKit(1) x

6350.724mm N 544564 128mm U Drwn

Command: CANCEL

Taskbar: OS, File Explorer, Edge, AutoCAD, PowerPoint, Word, Task View, System Tray (1:34, 2/21/2024)

Integration - Digital Asset Search

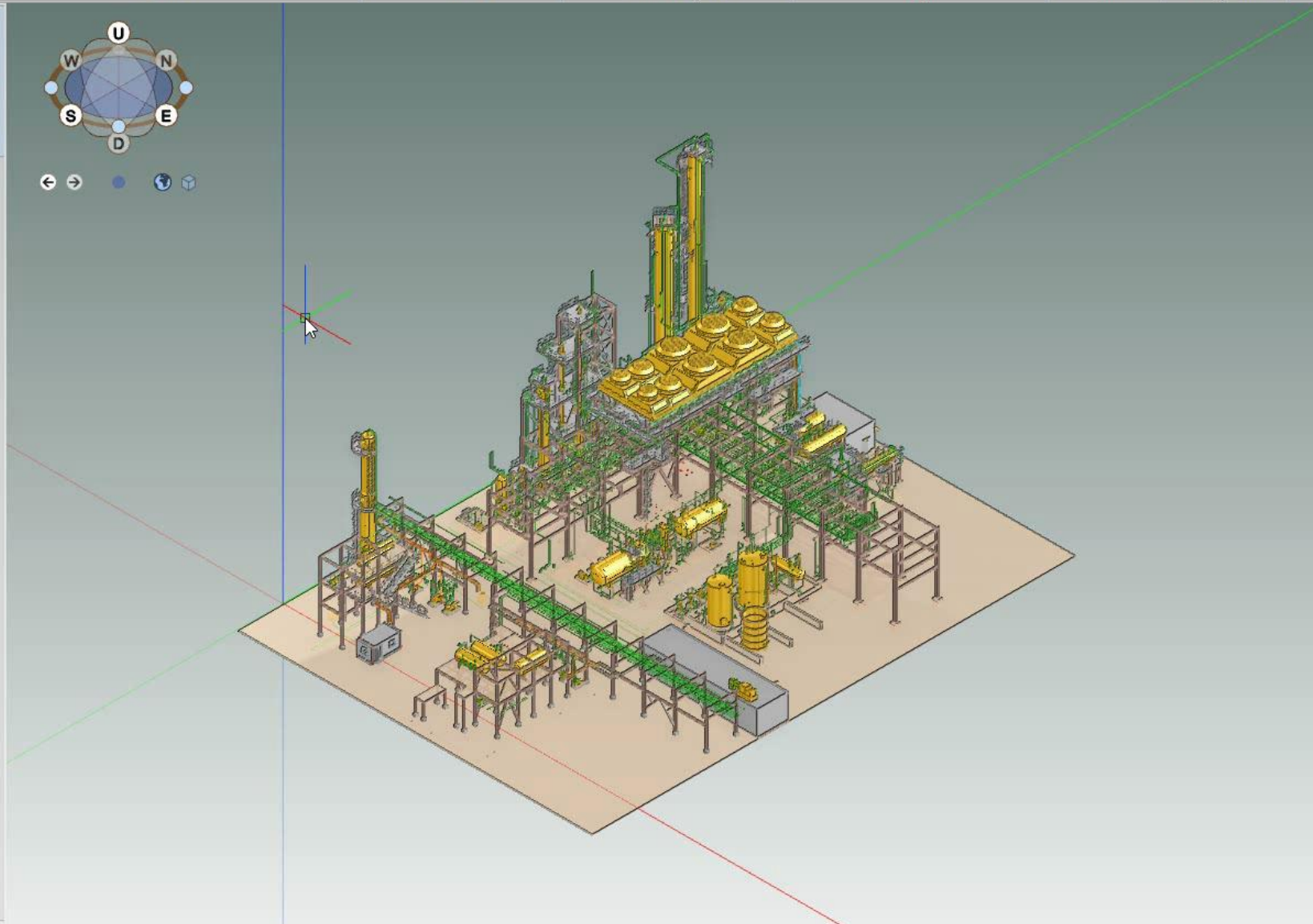
- Design In Context



The screenshot shows the AVEVA software interface. The top part displays a 3D model of a pump assembly. Below it, a window titled 'Associated Documents: Flow Calculation Document' is open, showing a graph titled 'Flow and Power vs. Flow'. The graph plots Head (Feet of Water) on the y-axis (0 to 120) against Flow (GPM) on the x-axis (0 to 120). It contains four data series: 'Power @ 3450 RPM' (dashed red line), 'Head @ 3450 RPM' (solid black line), 'Head @ 2070 RPM' (solid black line), and 'Power @ 2070 RPM' (dashed red line). There are also labels for 'Power @ 690 RPM' and 'Head @ 690 RPM' at the bottom of the graph area.

Model WORL *

Model Explorer

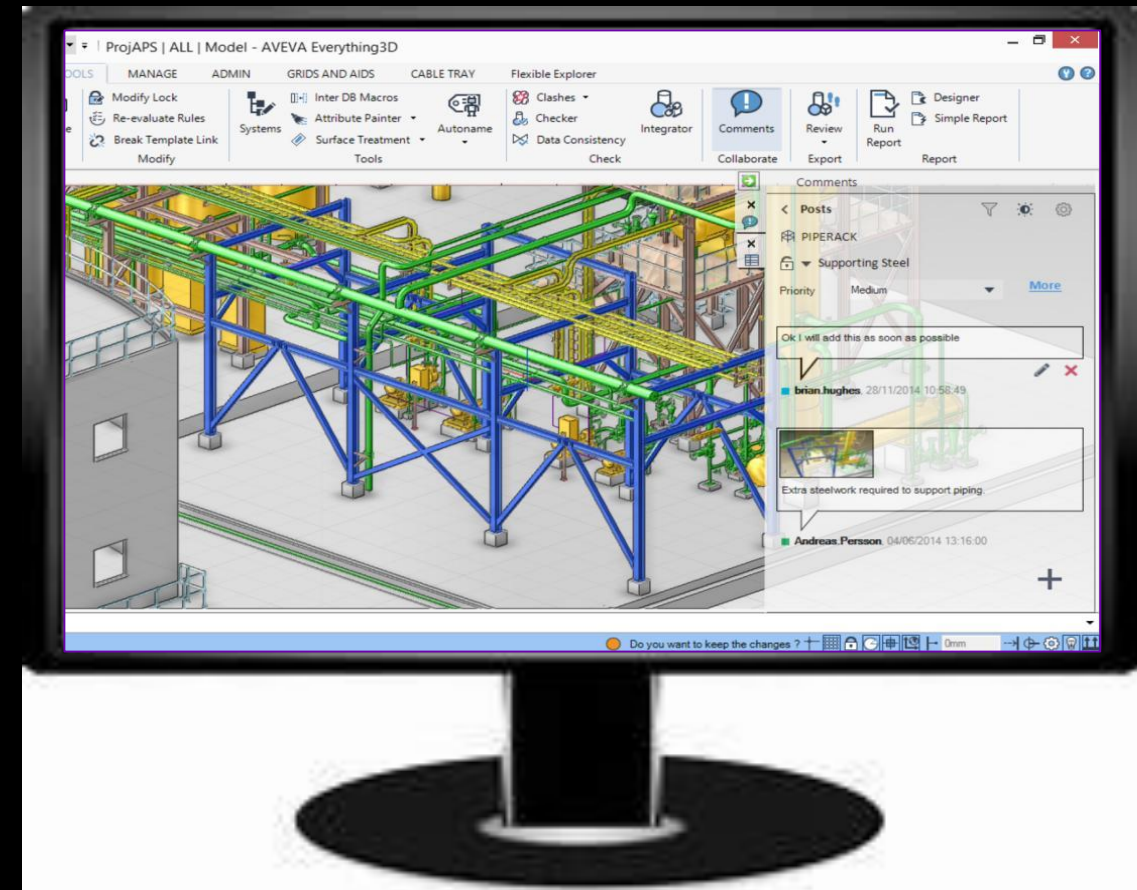
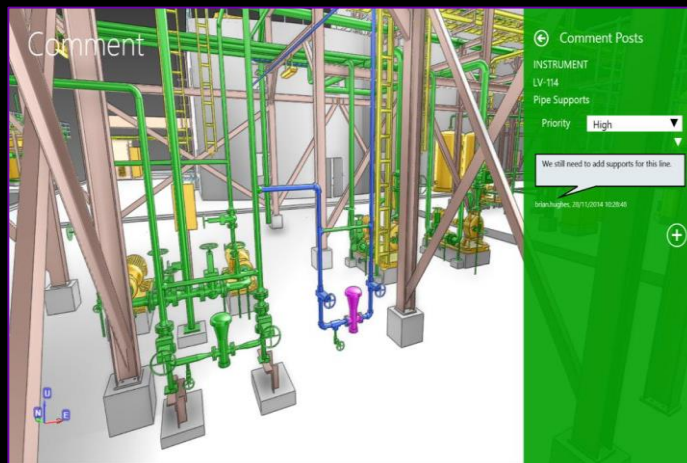
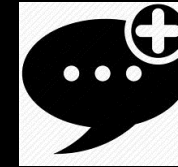


3D View(1) - Drawfist(1)

Navigation icons: Home, Back, Forward, Rotate, Zoom, Pan, etc.

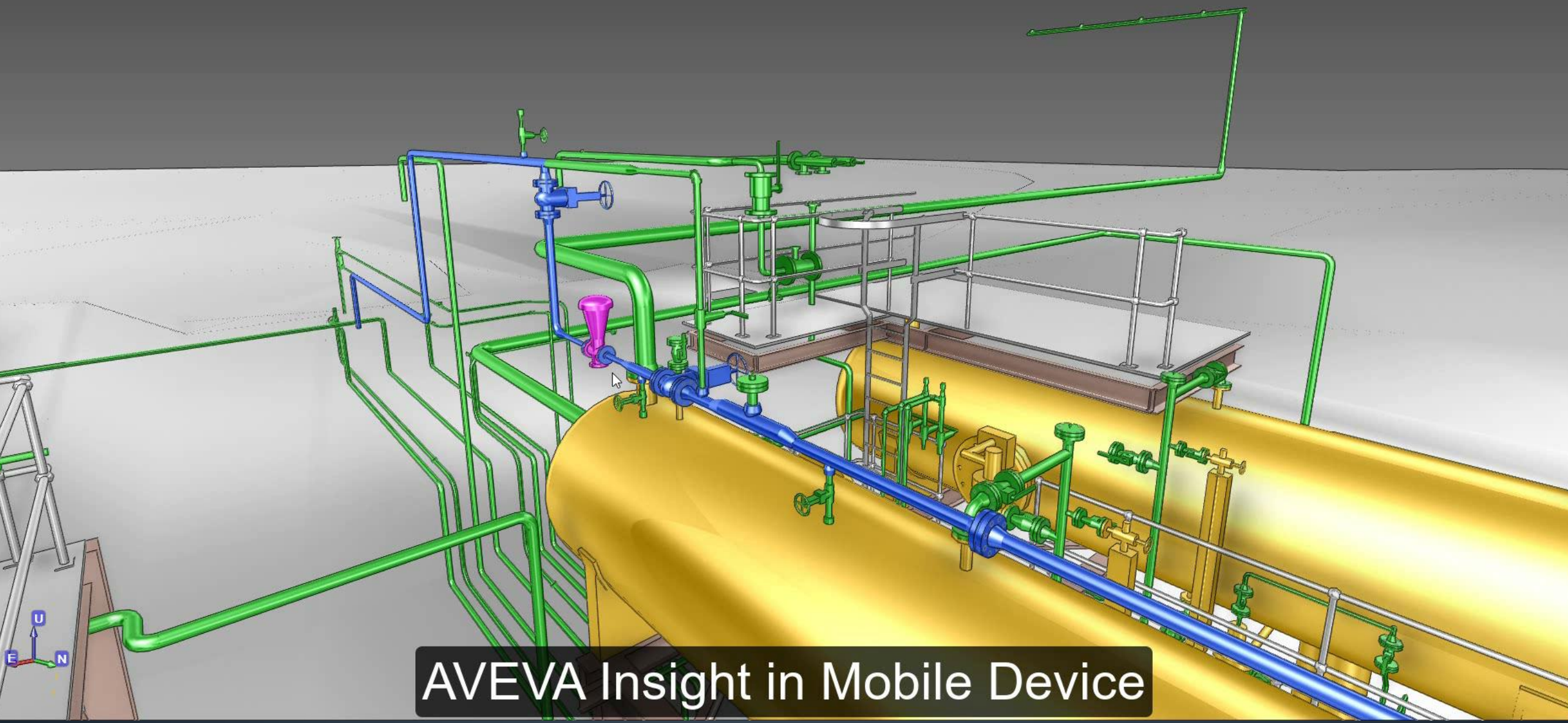
Integration for Communication- *3D Insight*

E3D-Insight



- Reduce Design & Construction Error with Mobile Access
- IE&D Environment for construction

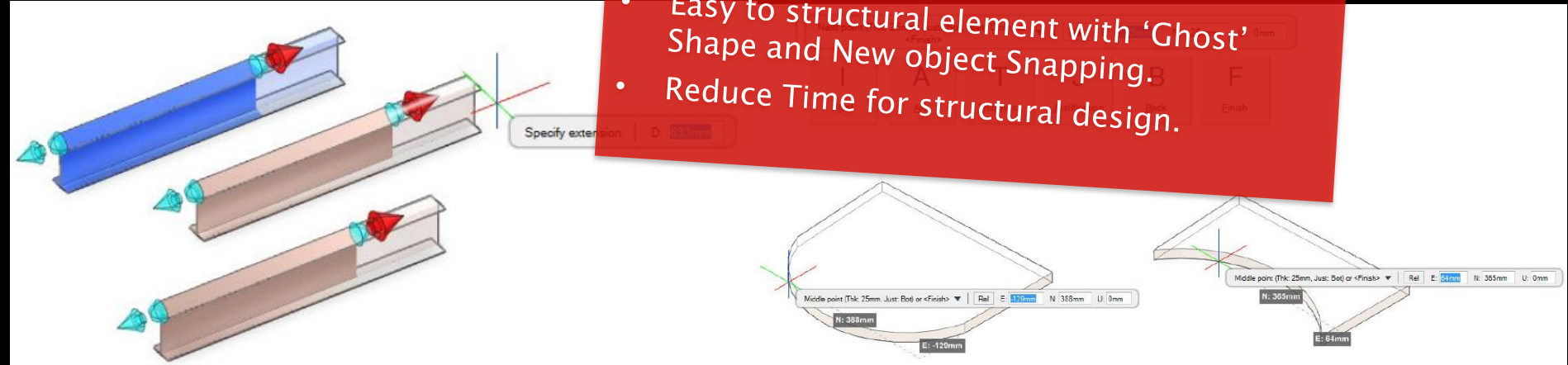
Home



AVEVA Insight in Mobile Device

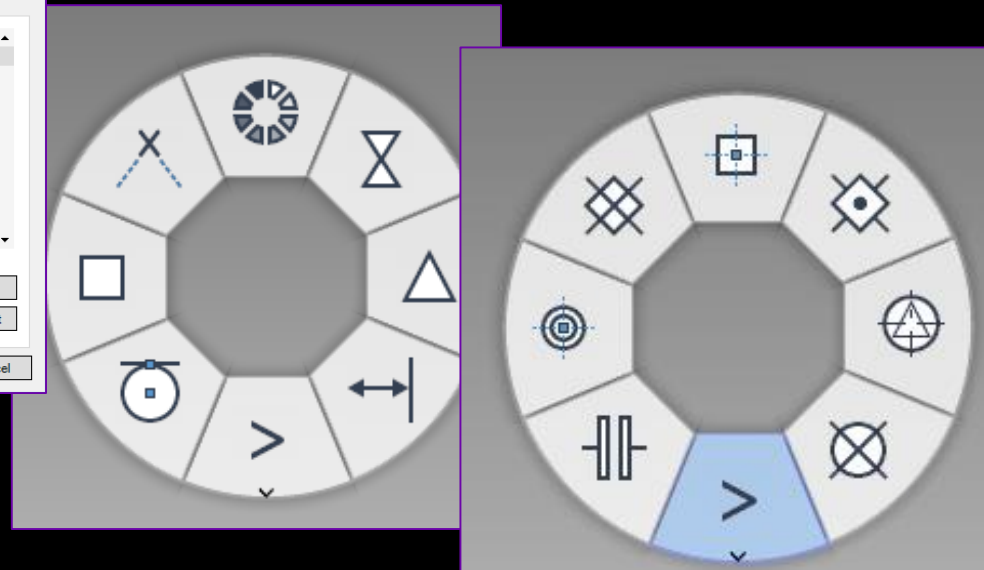
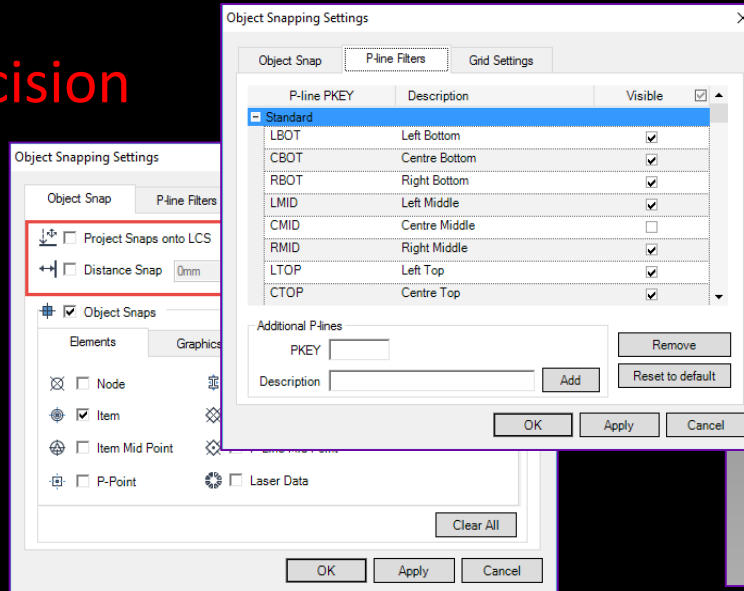
Major advances in usability – STRUCTURE DESIGN

- Liner Element
- GENSEC
- Planar Element
- PANE



- 'Ghost' Shape before decision
- Object Snapping Modes

- Element
- Graphic

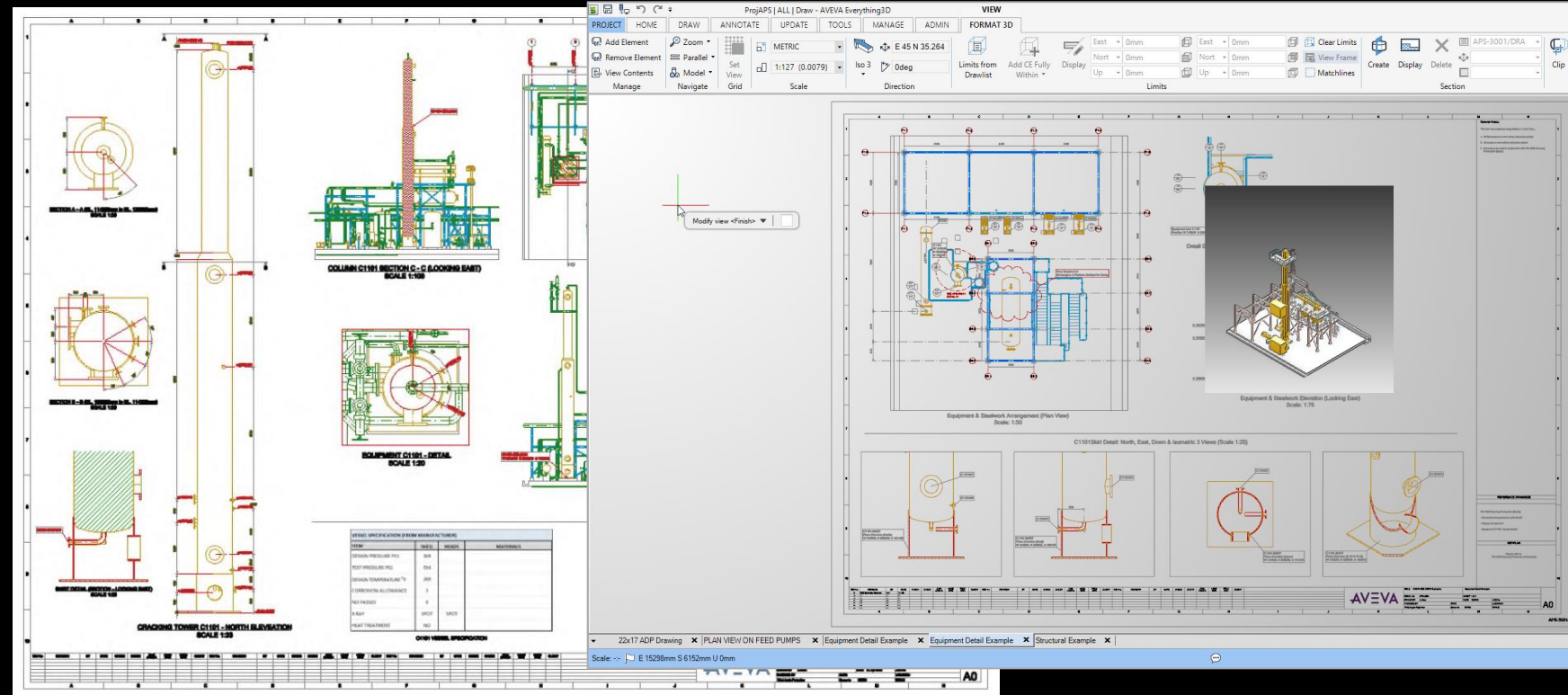


Major advances in usability – DRAW

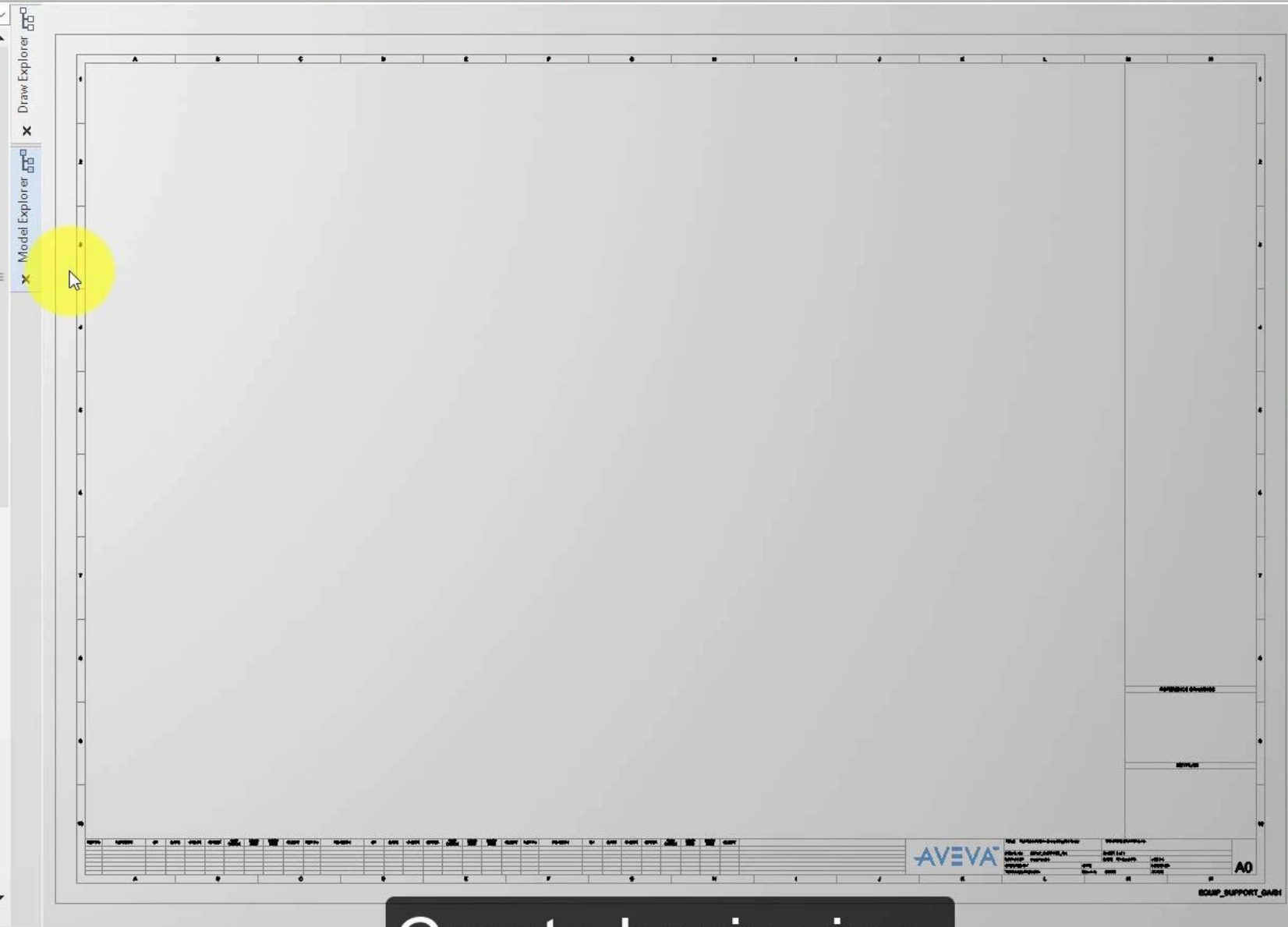
- Powerful automation with CIE
 - 'Ghost' Shape before decision
 - Object Snapping Modes

- Reduce Time to produce drawing with CIE
- Remove Inconsistency between design and drawing

- Improved 2D Drafting
- Revision Management



- UIP_SUPPORT
- Model WORL *
- SITE SITE-STRUCTURAL-AREA01
 - ADGRO 1
 - DIMGRO 1
 - ZONE ZONE-STRUCTURAL-AREA01
 - STRU EQUIP_SUPPORT
 - STRU PIPERACK
 - STRU AREA01_ELE-EQU-SUPP
 - STRU ZONE-STRUCTURAL-AREA01_ST001
- SITE SITE-STRUCTURAL-AREA02
- SITE SITE-STRUCTURAL-AREA03
- AREAWL 1
- SITE SITE-STRUCTURAL-AREA04
- SITE SITE-STRUCTURAL-AREA05
- SITE SITE-MINING-AREA05
- AREAWL_AREAWL-LASER-AREA04
- SITE SITE-LASER-AREA04
- DEMOWL DEMOWL-LASER-AREA04
- SITE SITE-CABLE-AREA01
- SITE SITE-CABLE-AREA02
- SITE SITE-CABLE-AREA03
- SITE SITE-CABLE-AREA04
- SITE SITE-CABLE-AREA05
- SITE SITE-CIVIL-AREA01
- SITE SITE-CIVIL-AREA02
- SITE SITE-CIVIL-AREA03
- SITE SITE-CIVIL-AREA04
- SITE SITE-CIVIL-AREA05
- SITE SITE-EQUIPMENT-AREA01
- GPWL TRAINING_GROUP_WORLD
- SITE SITE-EQUIPMENT-AREA02
- SITE SITE-EQUIPMENT-AREA03
- SITE SITE-EQUIPMENT-AREA04
- SITE SITE-EQUIPMENT-AREA05
- SITE SITE-ELECTRICAL-AREA01
- SITE SITE-ELECTRICAL-AREA02
- SITE SITE-ELECTRICAL-AREA03
- SITE SITE-ELECTRICAL-AREA04
- SITE SITE-ELECTRICAL-AREA05
- SITE SITE-HVAC-AREA01
- SITE SITE-HVAC-AREA02
- SITE SITE-HVAC-AREA03



Active Properties

Current Owner: EQUIP_SUPPORT_GA/S1
Current Layer: 0
Current Line Type: By Layer
Current Colour: By Layer

Properties

SHEE





Properties

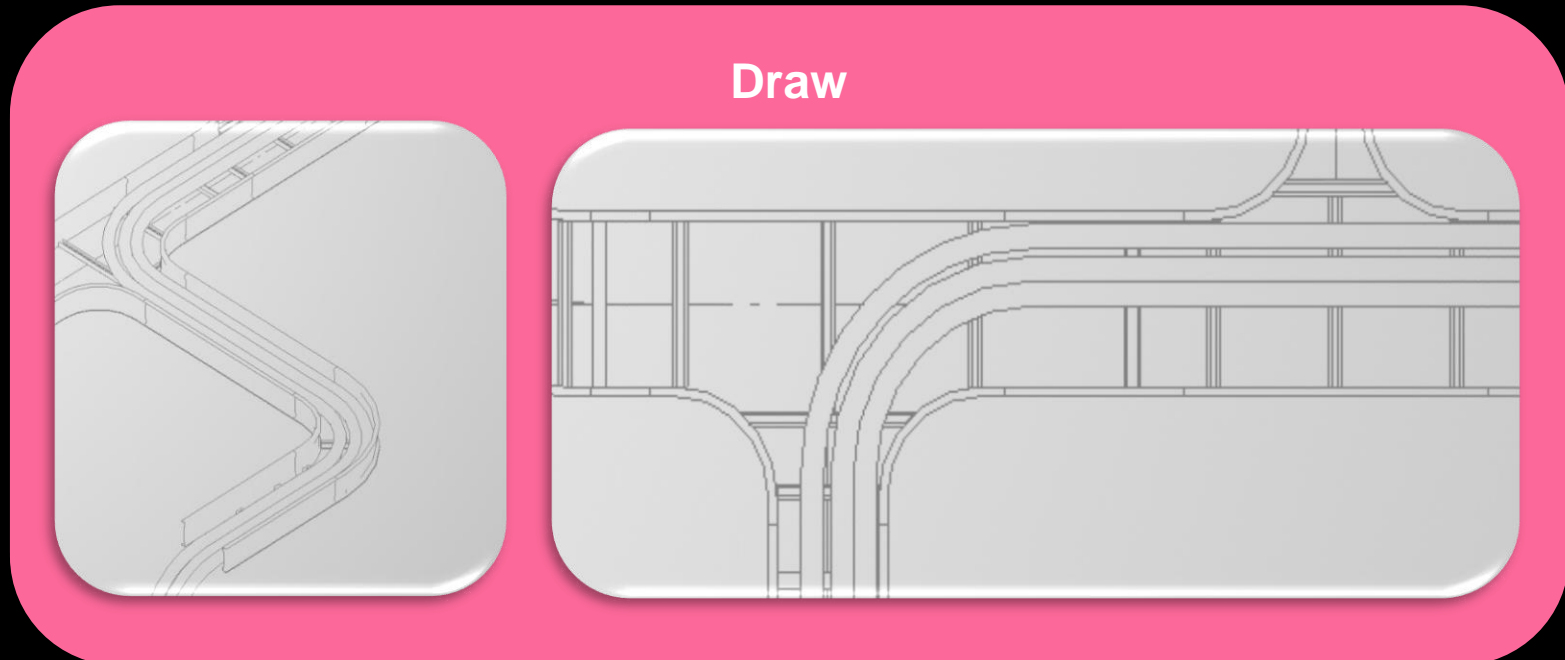
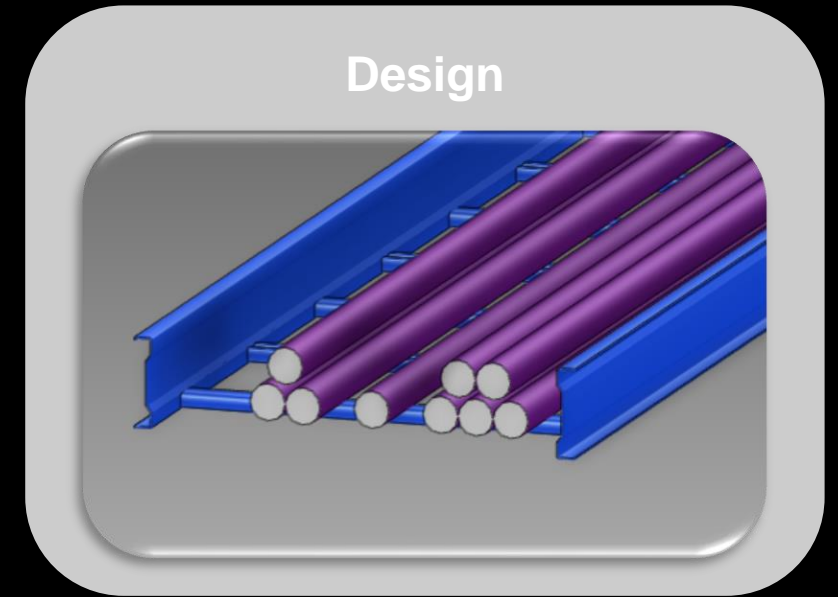
- Misc
 - Backing sheet: TT/DRA/MAS/BACKS/META
 - Information: (...)
 - Locked?: No
 - Owner: EQUIP_SUPPORT_GA
 - Plot file path: unset
 - Size: 1189mm 841mm (A0)
 - User defined attributes: (...)
- Representation
 - Name: EQUIP_SUPPORT_GA/S1
 - Title: TRAINING DRAWING A0
- Zoom
 - Zoom centre: Nulref
 - Zoom scale: Nulref

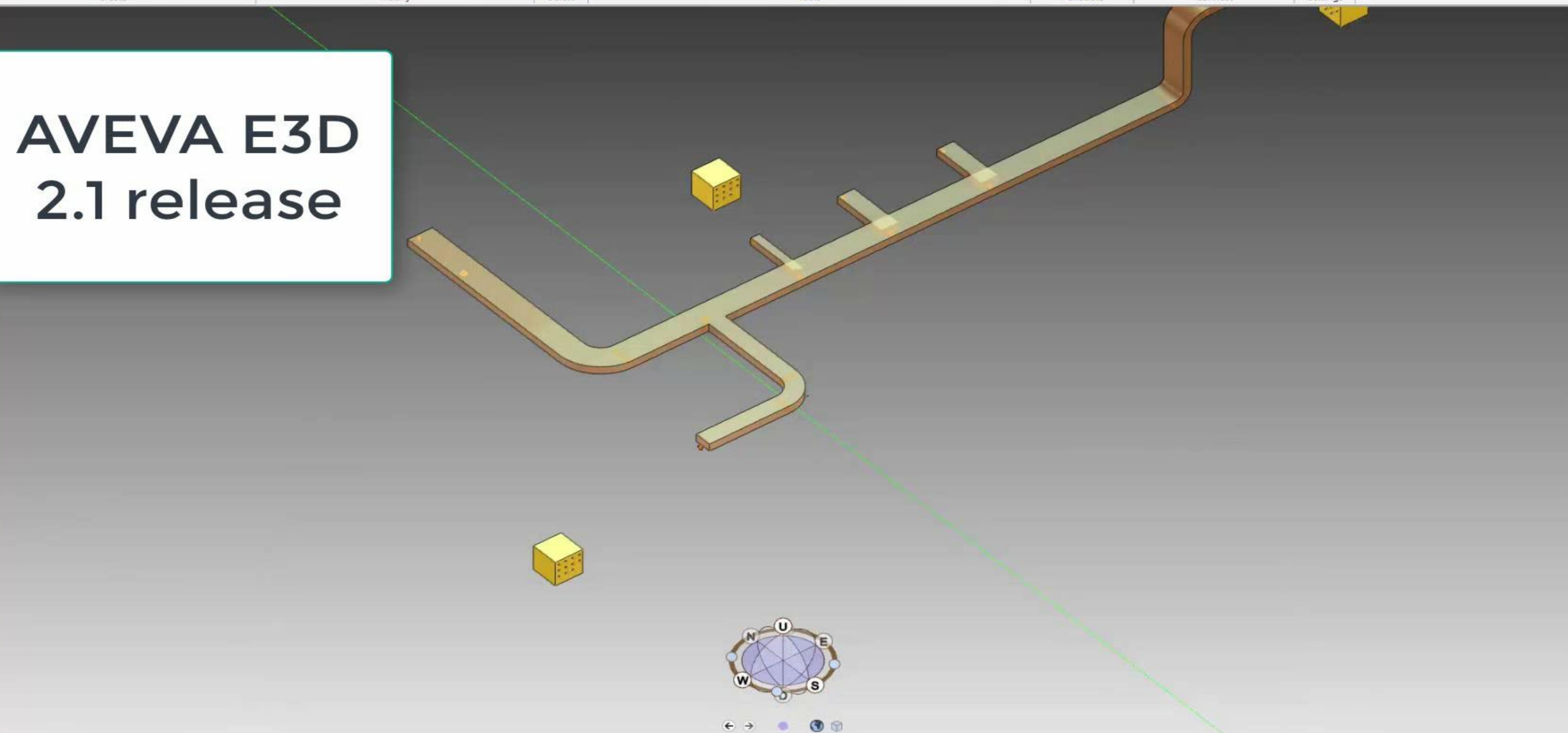
Name
Name of the picture owner.

Create basic view.

Cable Visualisation & Cable Bundles

- New element under zone to store cables in a bundle
 - Name of bundle can be used as bandage code
 - Layout mode of bundle can be :-
 - 1 Trefoil 
 - 2 Flat 
 - 3 Layered 
 - 4 Packed 
 - LAYMOD is integer
 - LAYMOT pseudo gives text



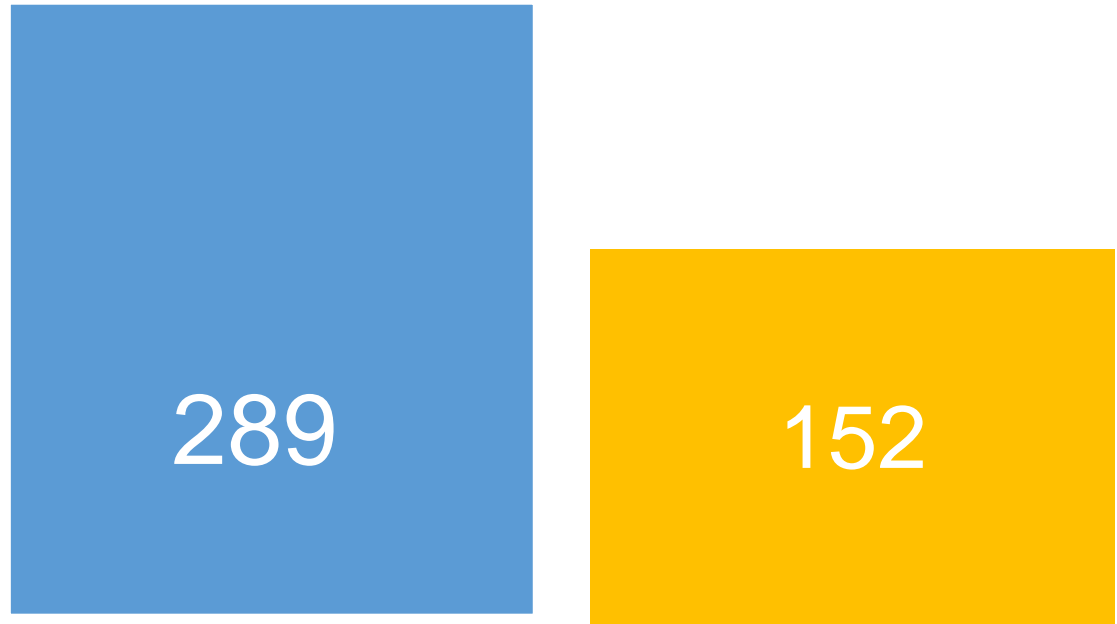
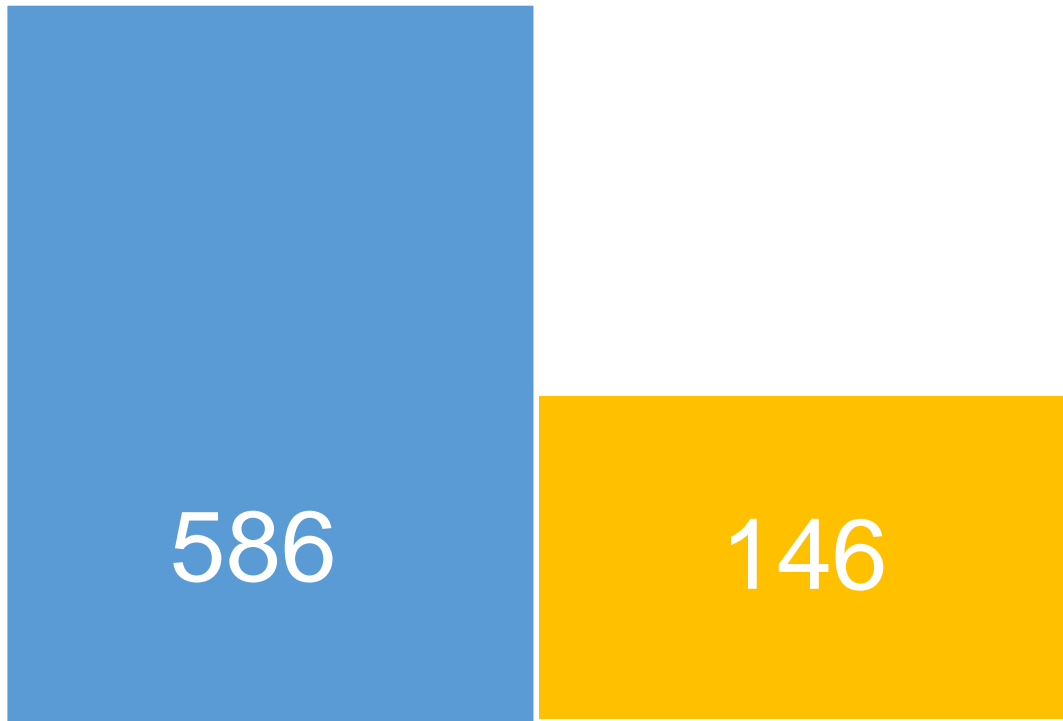


AVEVA E3D
2.1 release

AVEVA PDMS와 E3D 비교

Clicks
(mouse and keyboard)

Completion Time
(seconds)



PDMS

E3D

PDMS

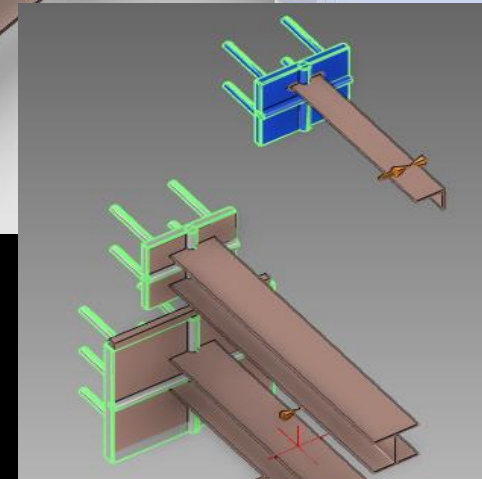
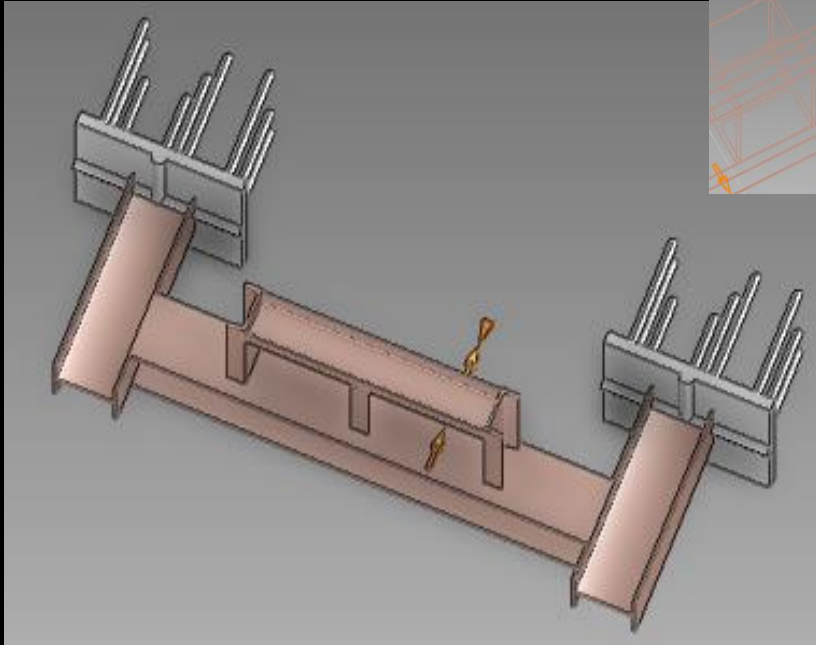
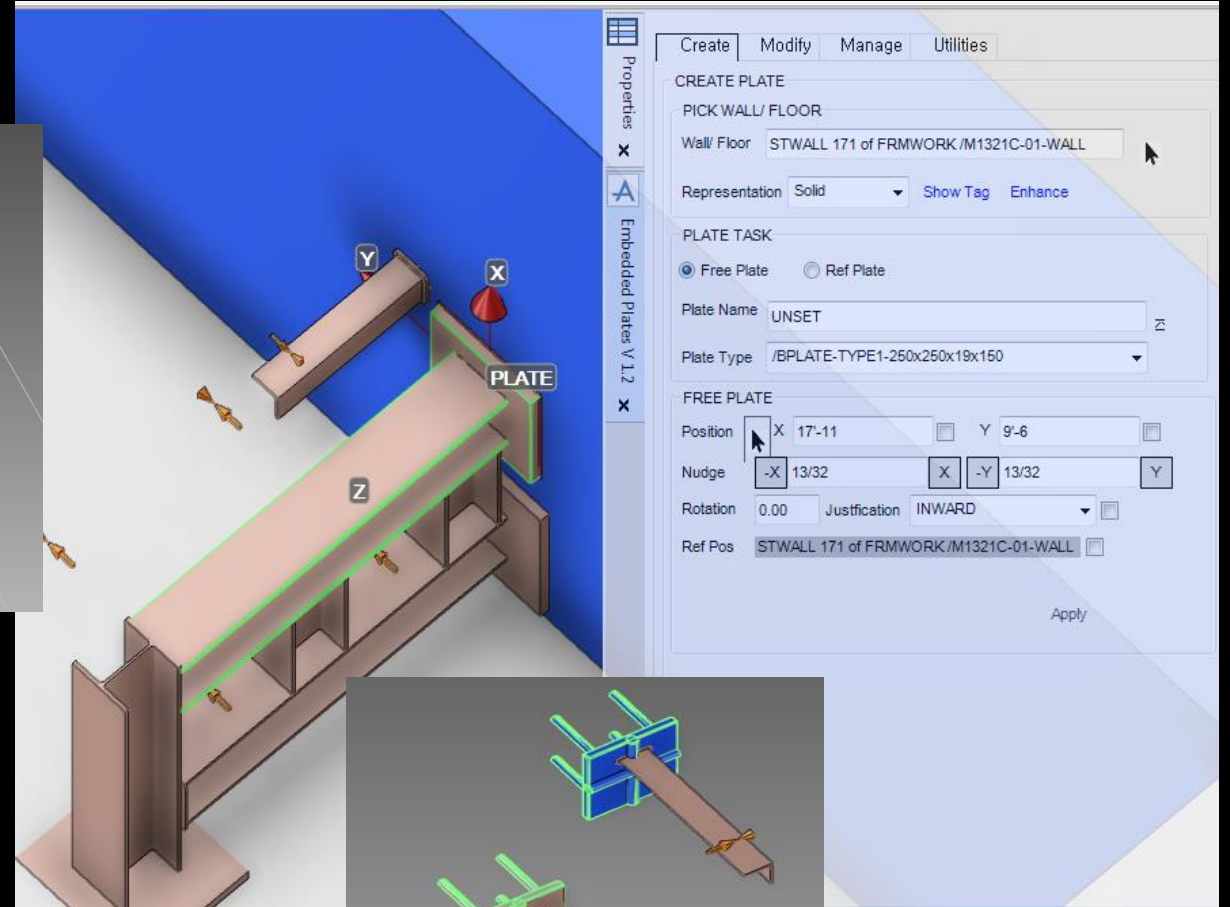
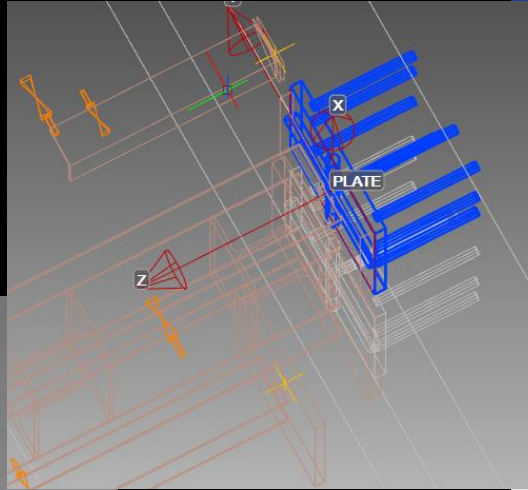
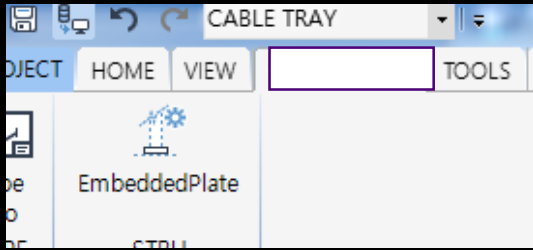
E3D

Q & A

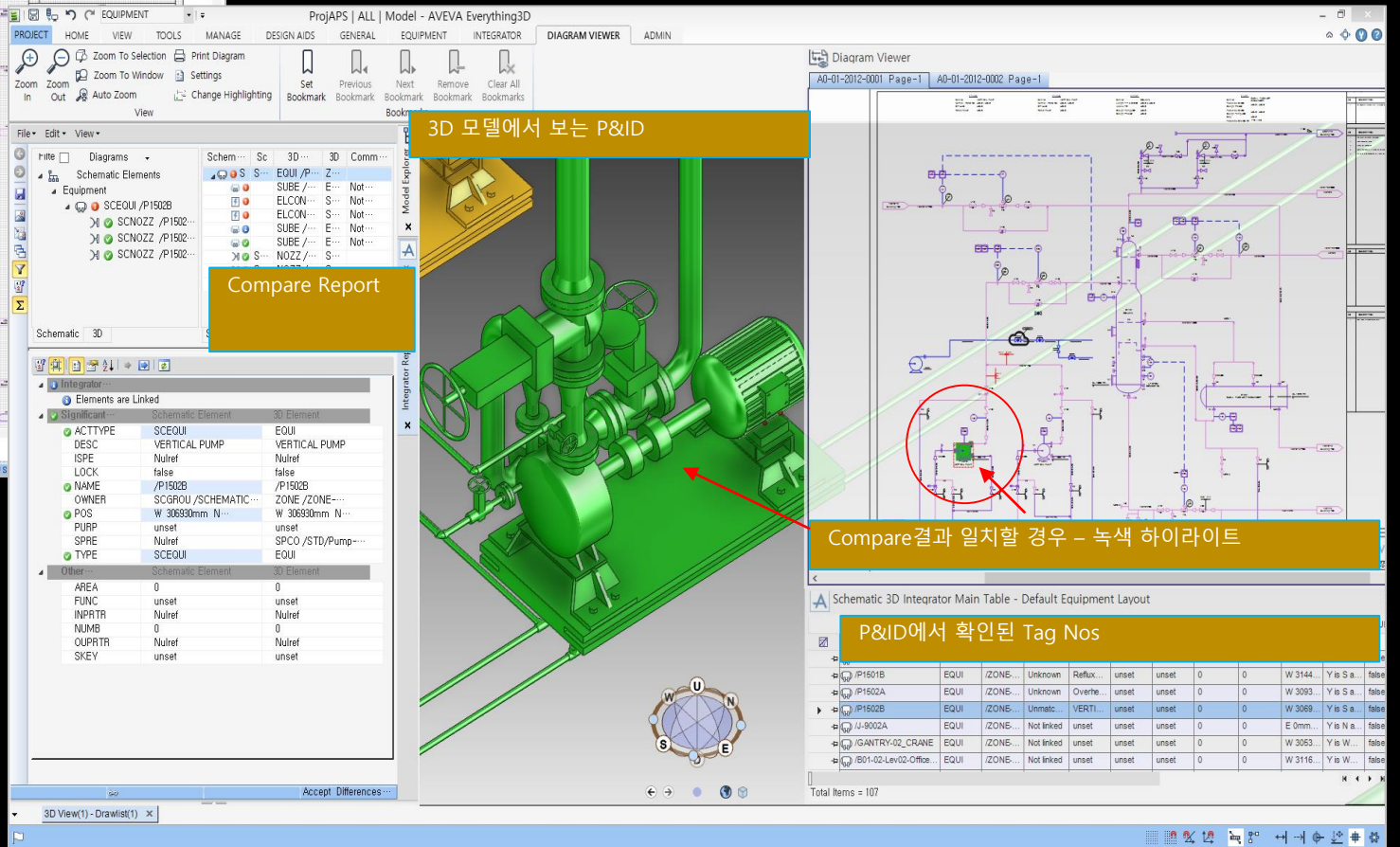
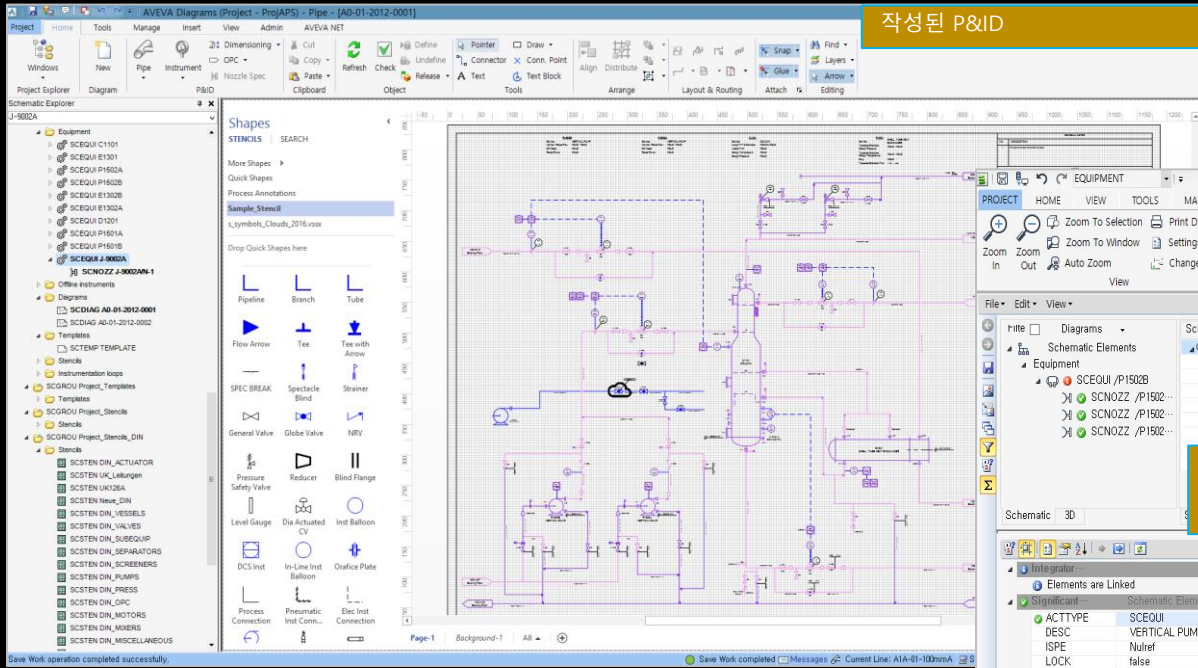


E3D 고객 적용 사례

Embedded Plate



1D/2D/3D 통합



작성된 P&ID

3D 모델에서 보는 P&ID

Compare Report

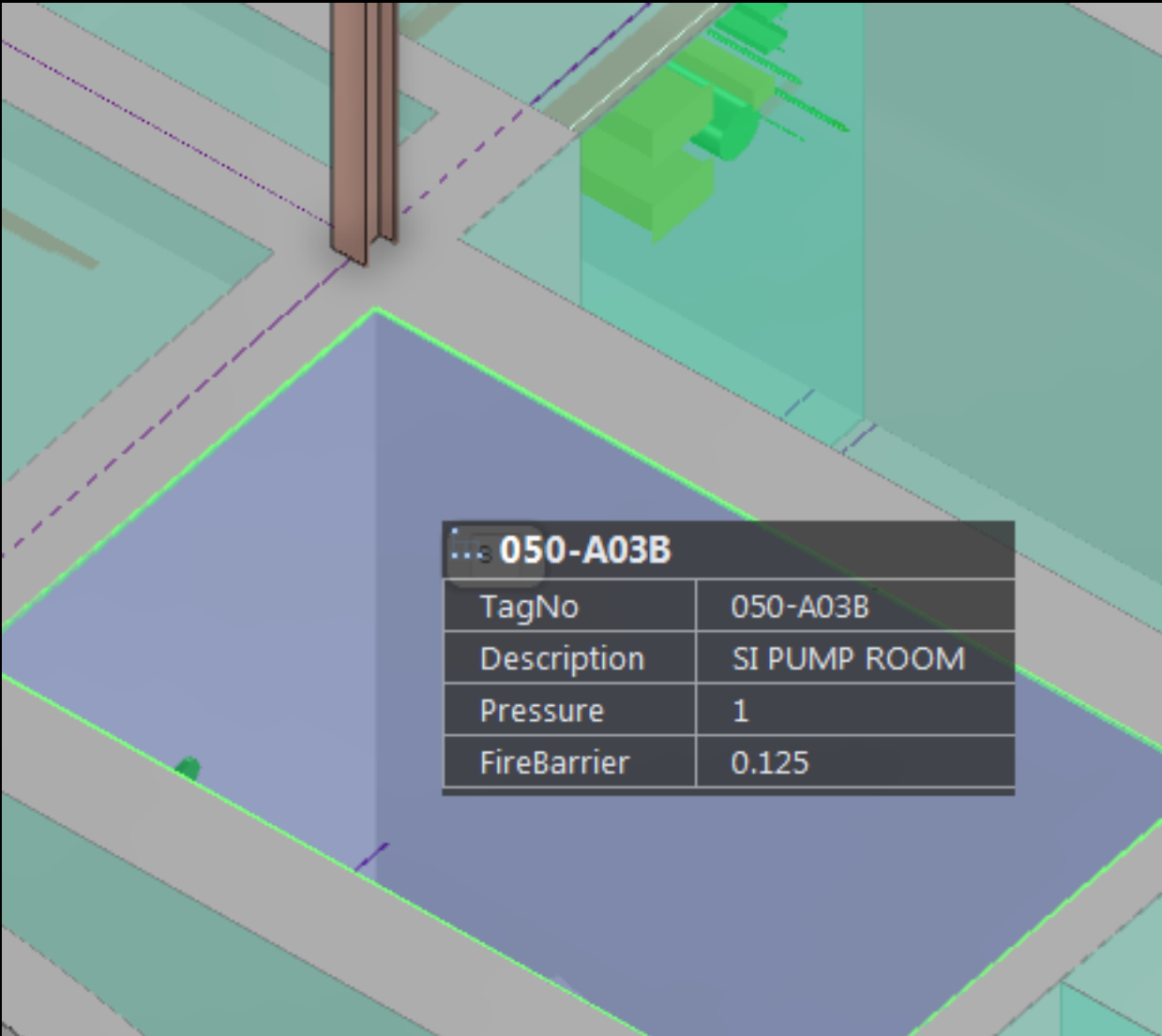
Compare결과 일치할 경우 - 녹색 하이라이트

P&ID에서 확인된 Tag Nos

Integrator	Schematic Element	3D Element
Elements are linked		
ACTTYPE	SCEQUI	EQUI
DESC	VERTICAL PUMP	VERTICAL PUMP
ISPE	Nulref	Nulref
LOCK	false	false
NAME	/PI502B	/PI502B
OWNER	SCGROU/SHEMATIC...	ZONE/ZONE...
POS	W 306930mm N...	W 306930mm N...
PURP	unset	unset
SPRE	Nulref	SPCO /STD/Pump...
TYPE	SCEQUI	EQUI
Other	Schematic Element	3D Element
AREA	0	0
FUNC	unset	unset
NUPRTR	Nulref	Nulref
NUMB	0	0
QUPRTR	Nulref	Nulref
SKEY	unset	unset

Tag No	Equipment	Zone	Unknown	Reflex	Overhe
/PI1501B	EQUI	/ZONE...	Unknown	Reflex...	unset	unset	0	0	0	0	W 3144	Y is S a...	false					
/PI1502A	EQUI	/ZONE...	Unknown	Overhe...	unset	unset	0	0	0	W 3063	Y is S a...	false						
/PI1502B	EQUI	/ZONE...	Unmatc...	VERTI...	unset	unset	0	0	0	W 3069	Y is S a...	false						
/J-9002A	EQUI	/ZONE...	Not linked	unset	unset	unset	0	0	0	E 0mm...	Y is N a...	false						
/GANTRY-02_CRANE	EQUI	/ZONE...	Not linked	unset	unset	unset	0	0	0	W 3063	Y is W...	false						
/B01-02-Lev02-Offic...	EQUI	/ZONE...	Not linked	unset	unset	unset	0	0	0	W 3116	Y is W...	false						

지능형 공간 정보 및 Column 정보 인식

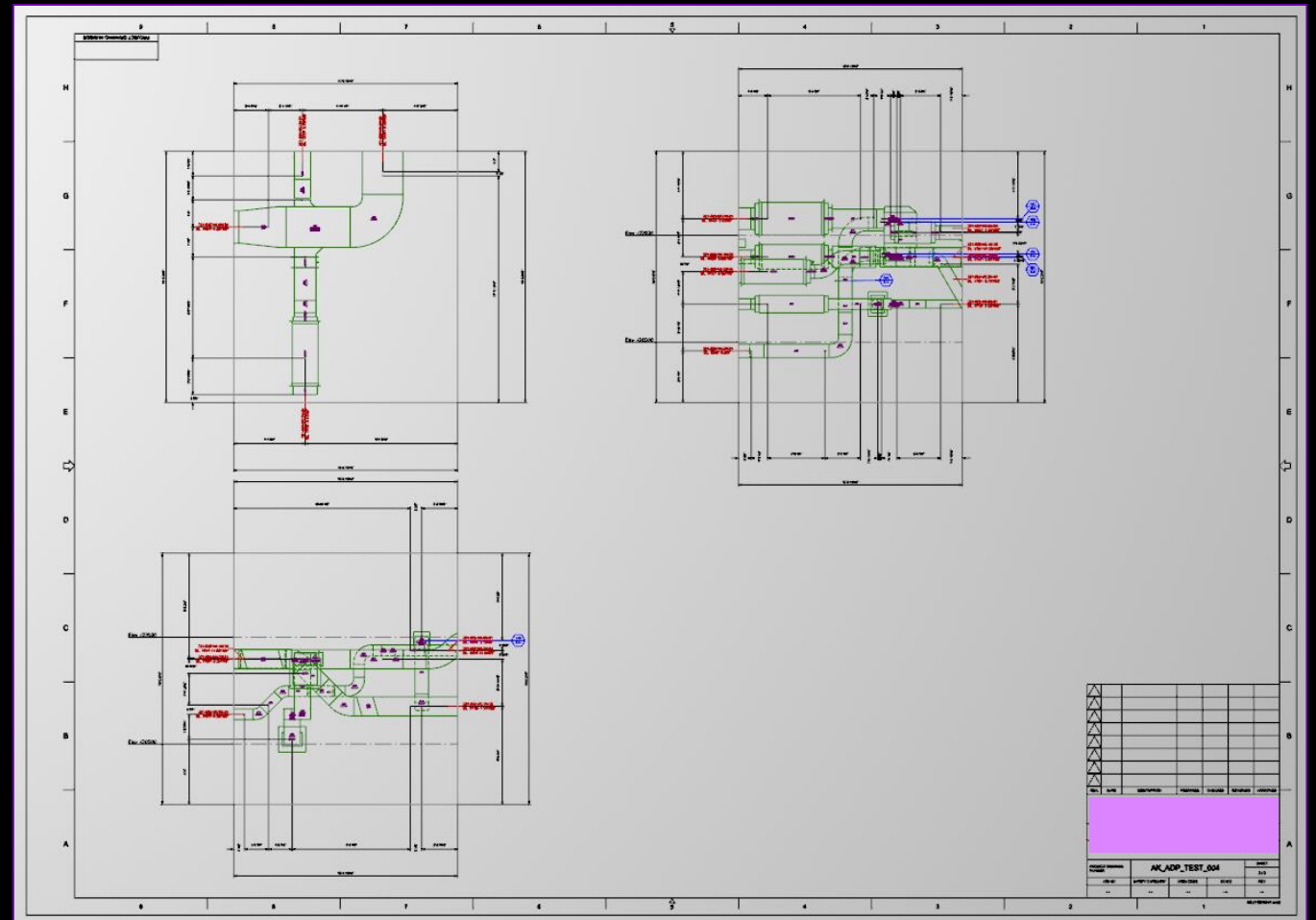
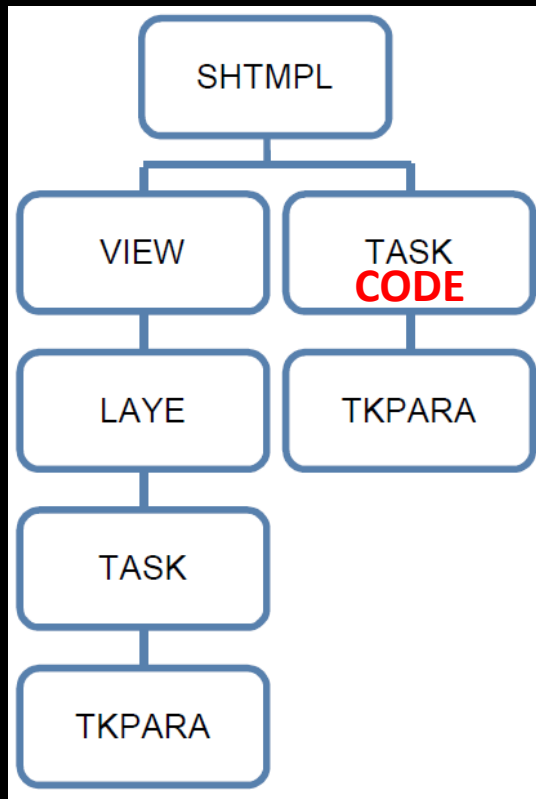
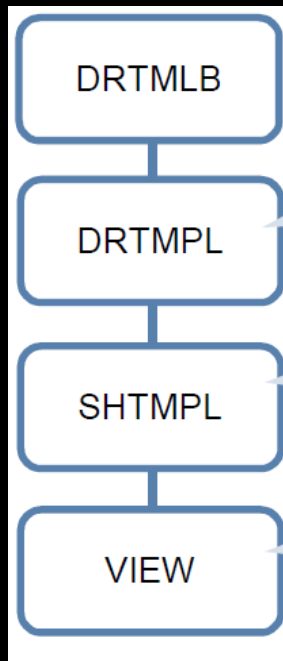


WAJ15-01-01	
Base Type	STWALL
Wall No	/WAJ15-01-01
Type	0
Height	48in
Length	240in
Weight	269939lb
Thickness(Missile Barrier): 2in	
Width	48in
Location Y(from Column)	AJ + 2'
Location Z(from Column)	EL.55'
Elevation	660in
Volumn	3179520in3
Material	
Strength	-
Structure Type	?
Ventilation Barrier	0
Fire Barrier	0Hr
Flood Barrierel1	0
Helb Barrierel2	0
Helb Barrierel3	0
Helb Barrierel1	0
Flood Barrierel2	0
Flood Barrierel3	0
Radiation Shield Barrier	0
Missile Barrier	2
COG	E 174' N 252' U 66'6in

Automatic Drawing Production

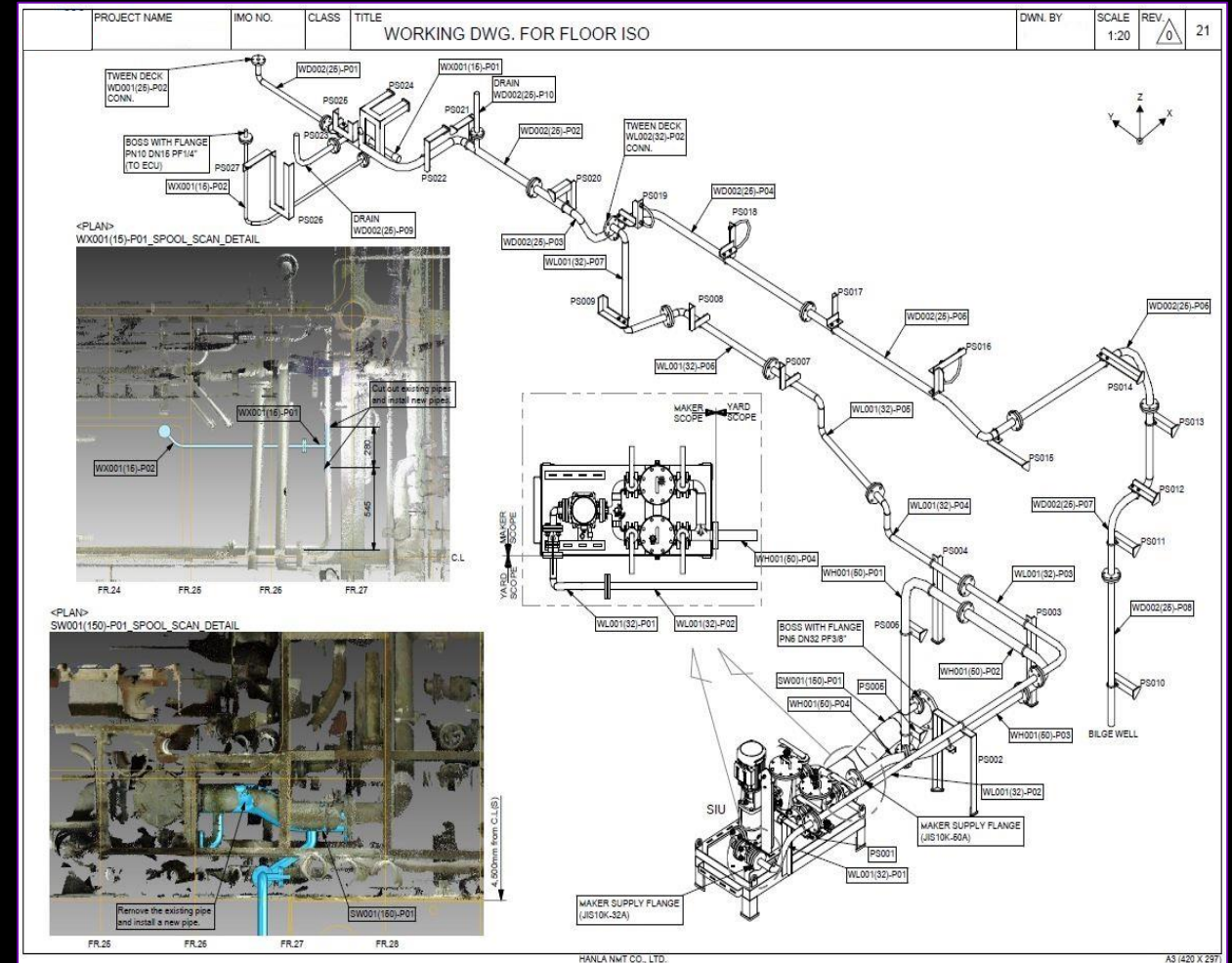
ADP

- Drawing Templates and Template Libraries
- Tasks and the Task Library



Laser Interface with E3D

BWTS RETROFIT ENGINEERING





EPC 고객사를 위한 E3D의 장점

3D View 성능 개선

ARF

AVEVA E3D

E3D



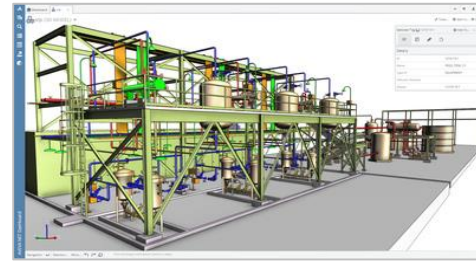
- Powerful 3D design solution
- Integrated laser
- Create, comment, review and approve designs
- Designed for high end Windows desktop

AVEVA E3D INSIGHT



- Visualise, inspect, comment and approve 3D designs
- Directly access live AVEVA E3D design models
- Designed for Windows 8.1 touch-enabled devices

AVEVA NET



- Fast and easy access to trusted digital asset information
- Built in 1D, 2D and 3D visualisation
- Supports laser via LFM Net View integration
- Designed for browsers (desktop and mobile)

AVEVA ENGAGE



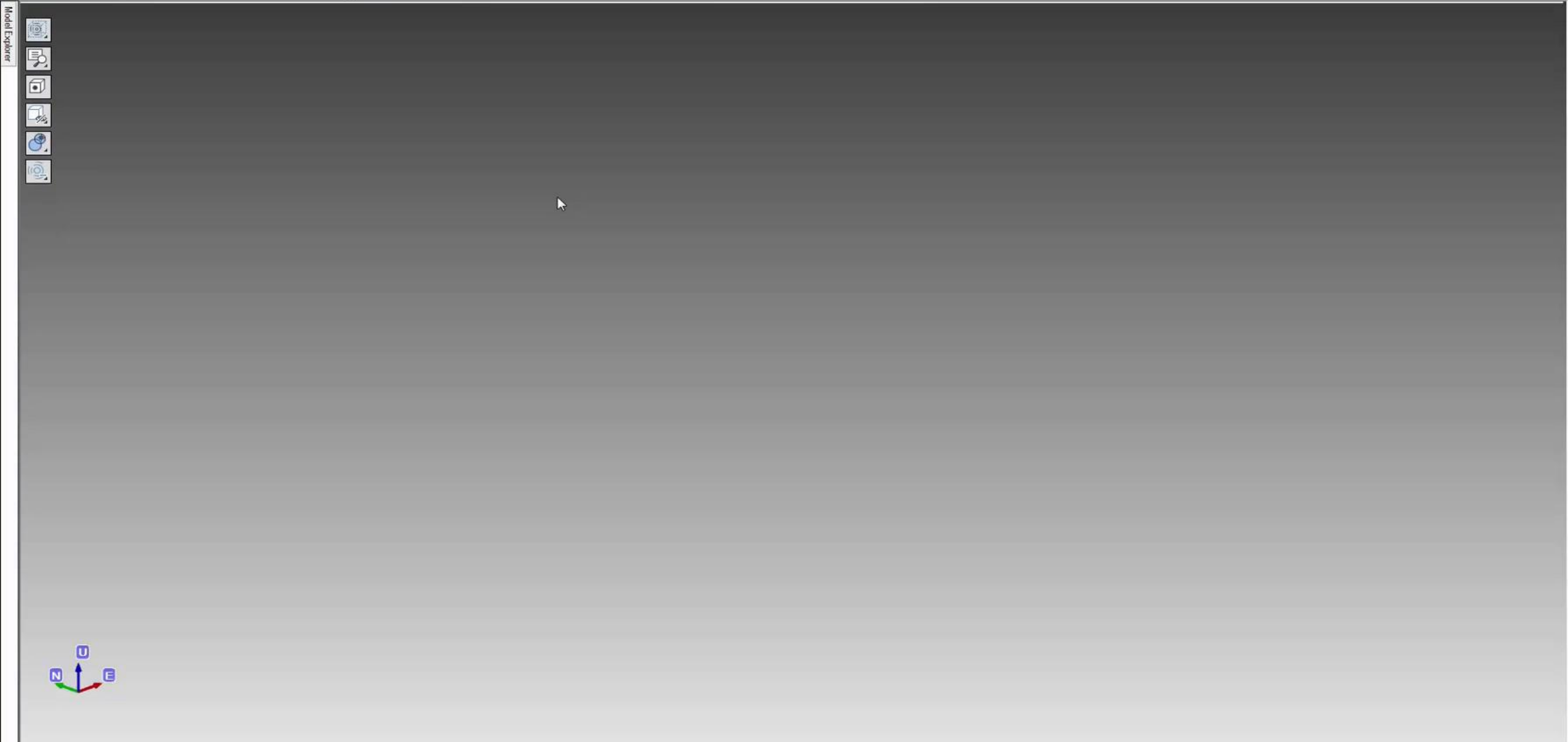
- High definition collaborative decision support
- Intuitive navigation and information access
- Integrated 3D design and laser models
- Designed for large touch displays powered by high end Windows desktops

AVEVA XR

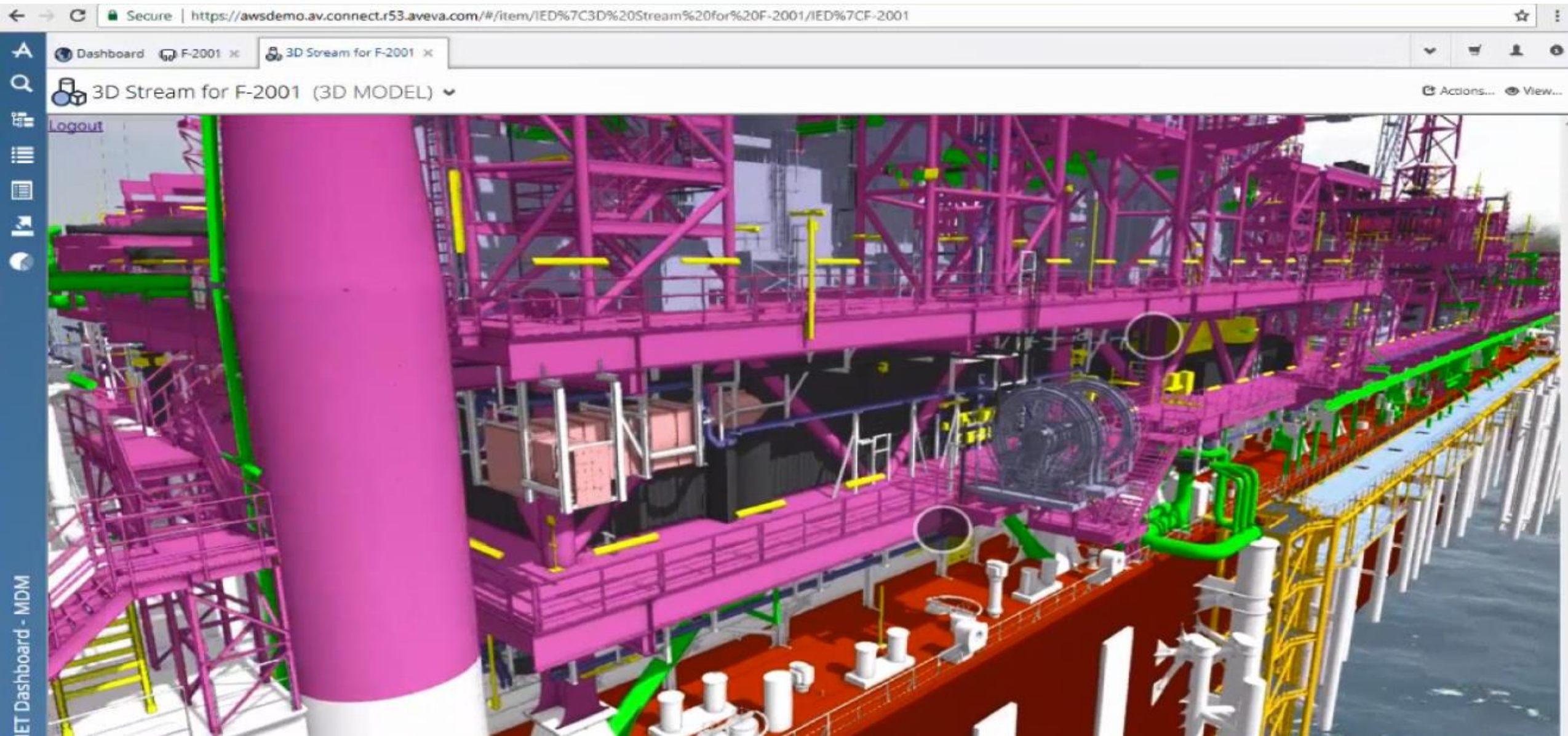


- 3D Industrial Gaming platform for Major Capital Projects and Asset Operations
- Multi user immersive training; process and activity simulation.
- Designed for GPU powered Windows desktops

Loading...



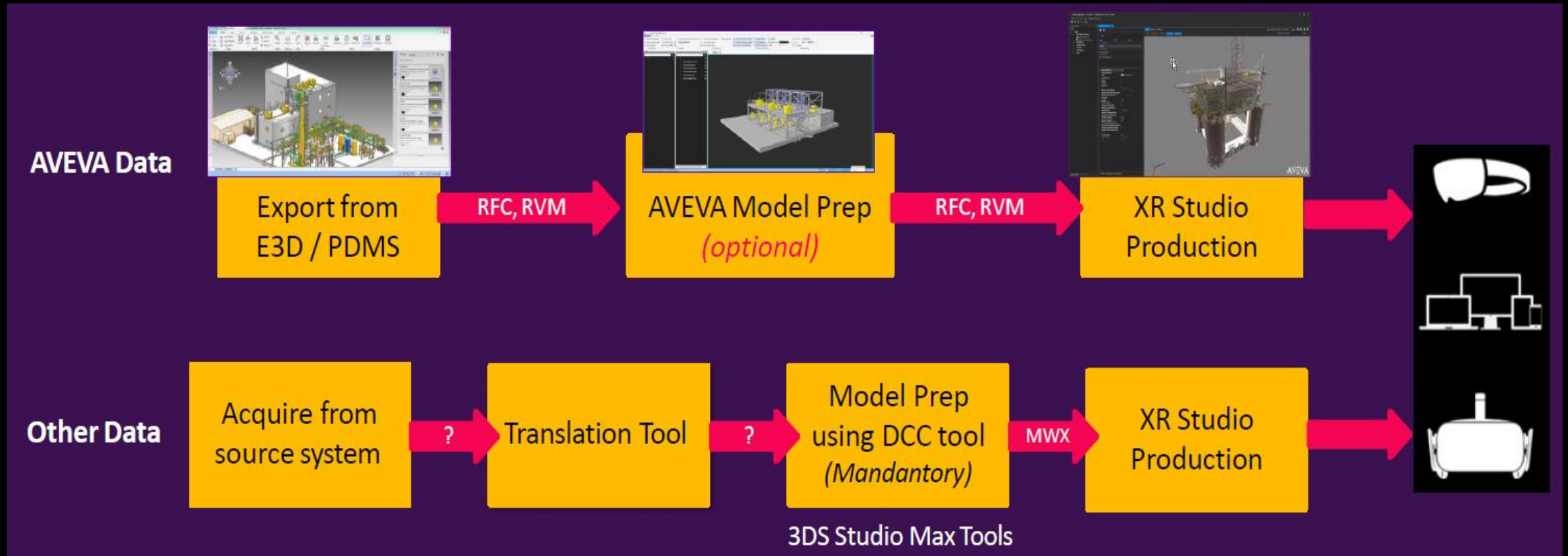
AVEVA Net. view 성능 개선



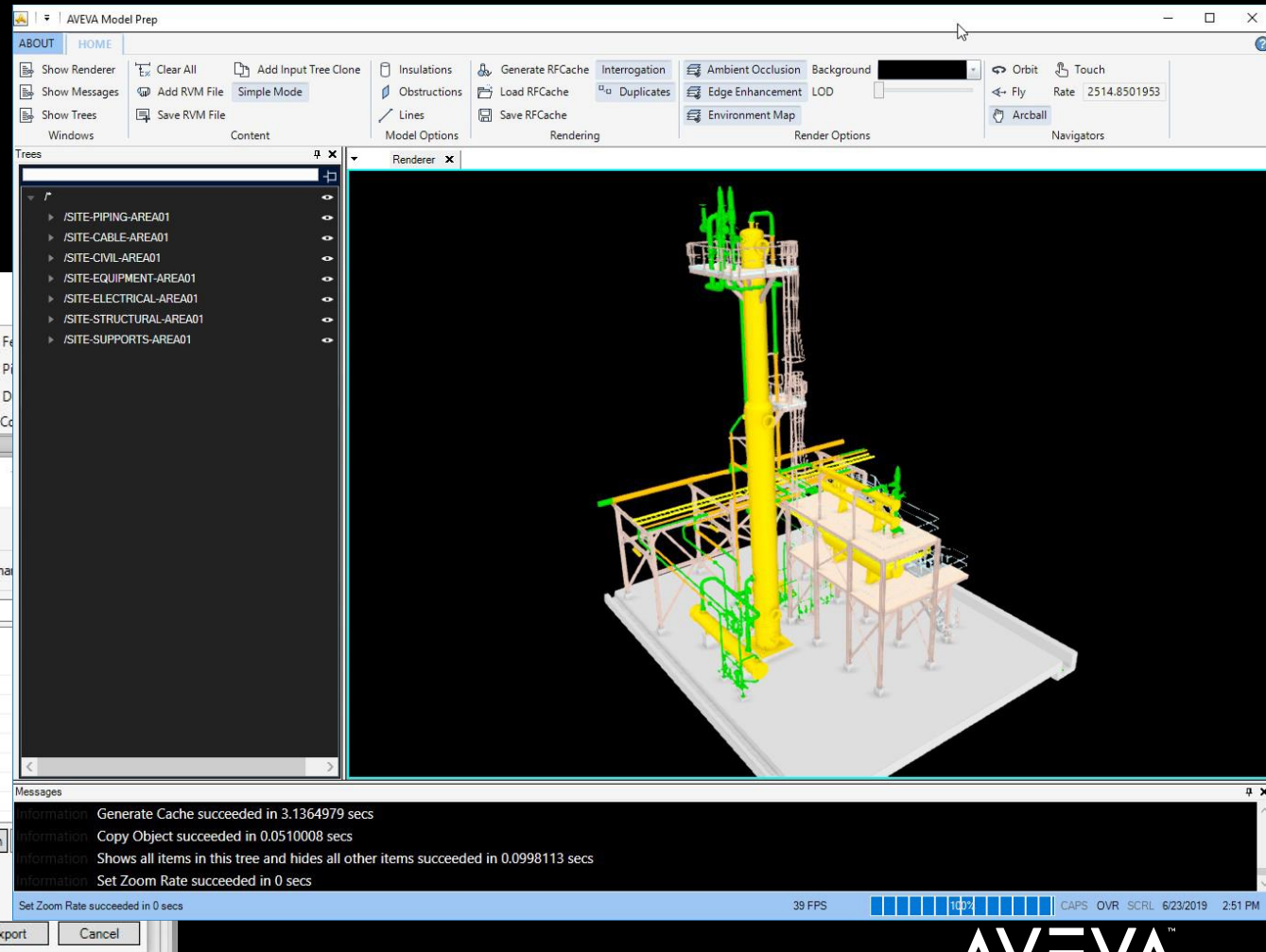
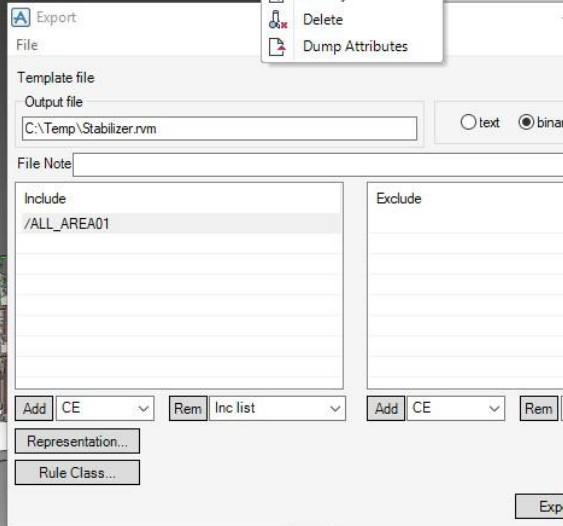
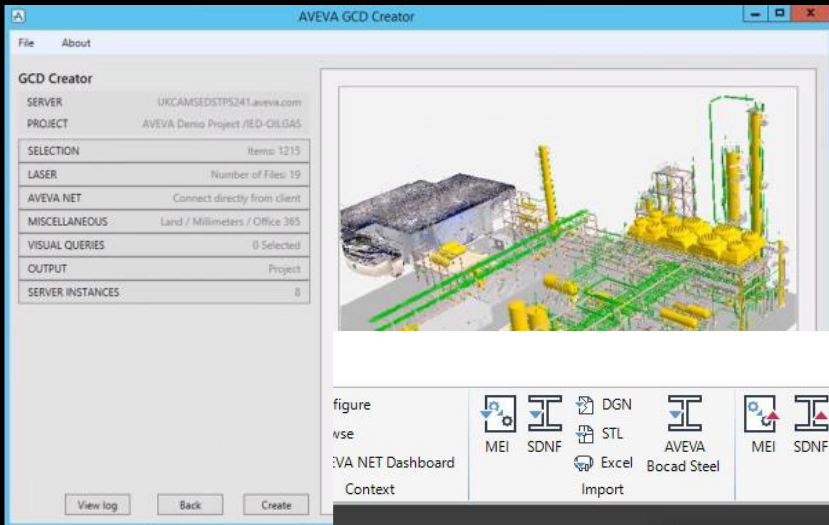
AVEVA XR – AR/MR/VR



XR Format 변환



Easy to Change XR model

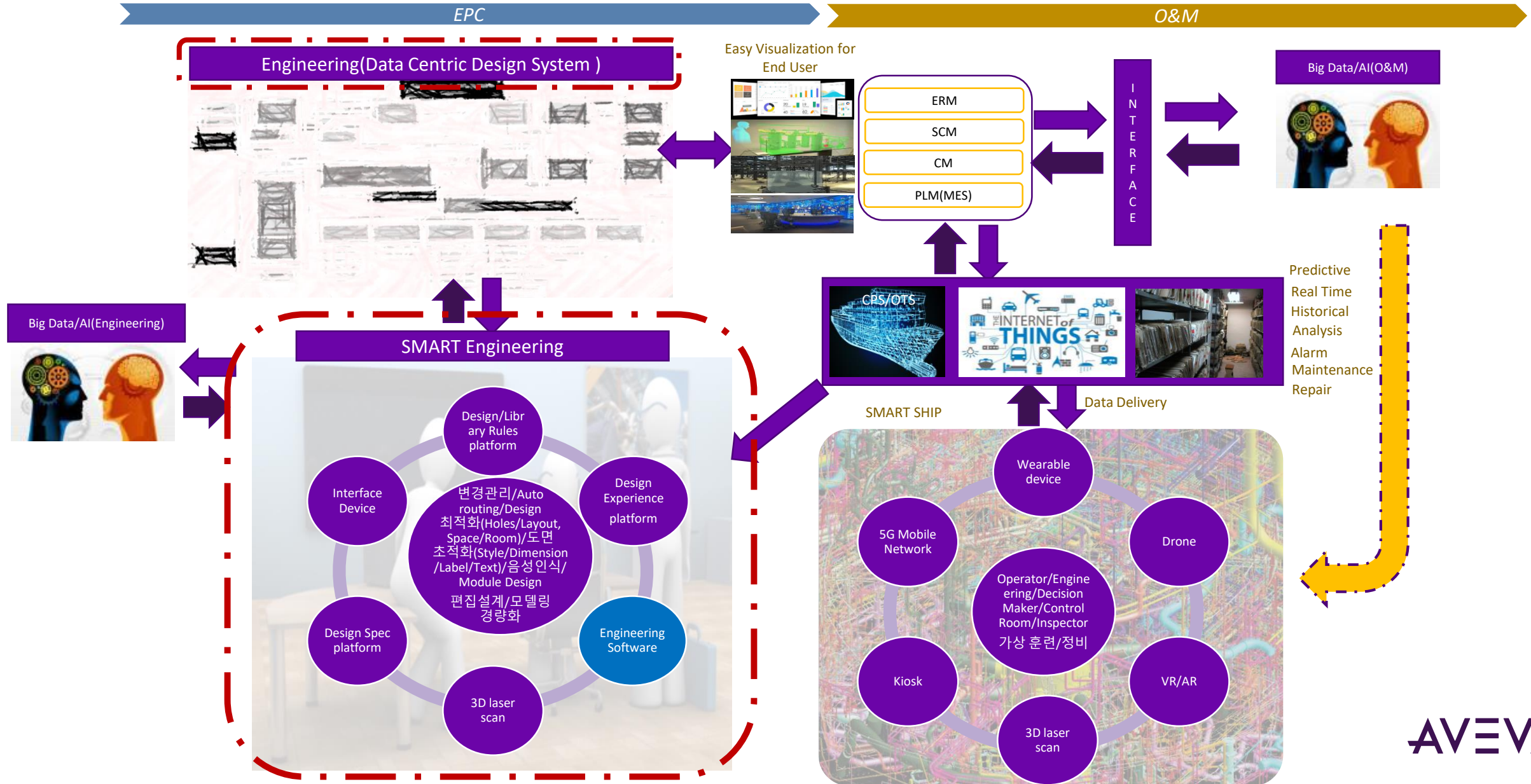


Q & A



E3D를 통한 비즈니스 기대 효과

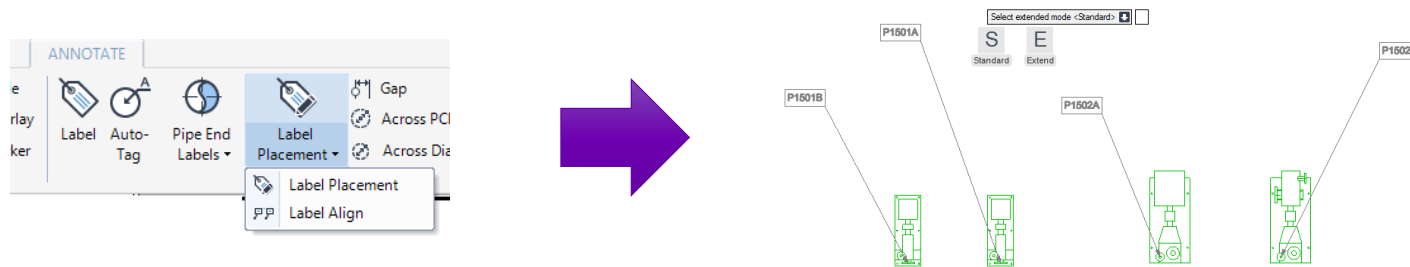
Smart 엔지니어링



Smart 엔지니어링

지능형 Labels

- **Able to align Labels in the Draw Canvas**



- **BTEXT and User-defined Functions**



Smart 엔지니어링

대화형/지능형 명령어 사용

ADD ALL type WITHIN VOLUME CE dist

Where type is type of element for search within volume box of CE

Q CLOSEST ElementType dir

Where ElementType is type of element to be searched and dir is direction of searching

DELETE CEElementType MEMBERS

Where CEElementType is type of CE in hierarchy members of which to be deleted

ROTATE ABOUT axisName BY angleValue

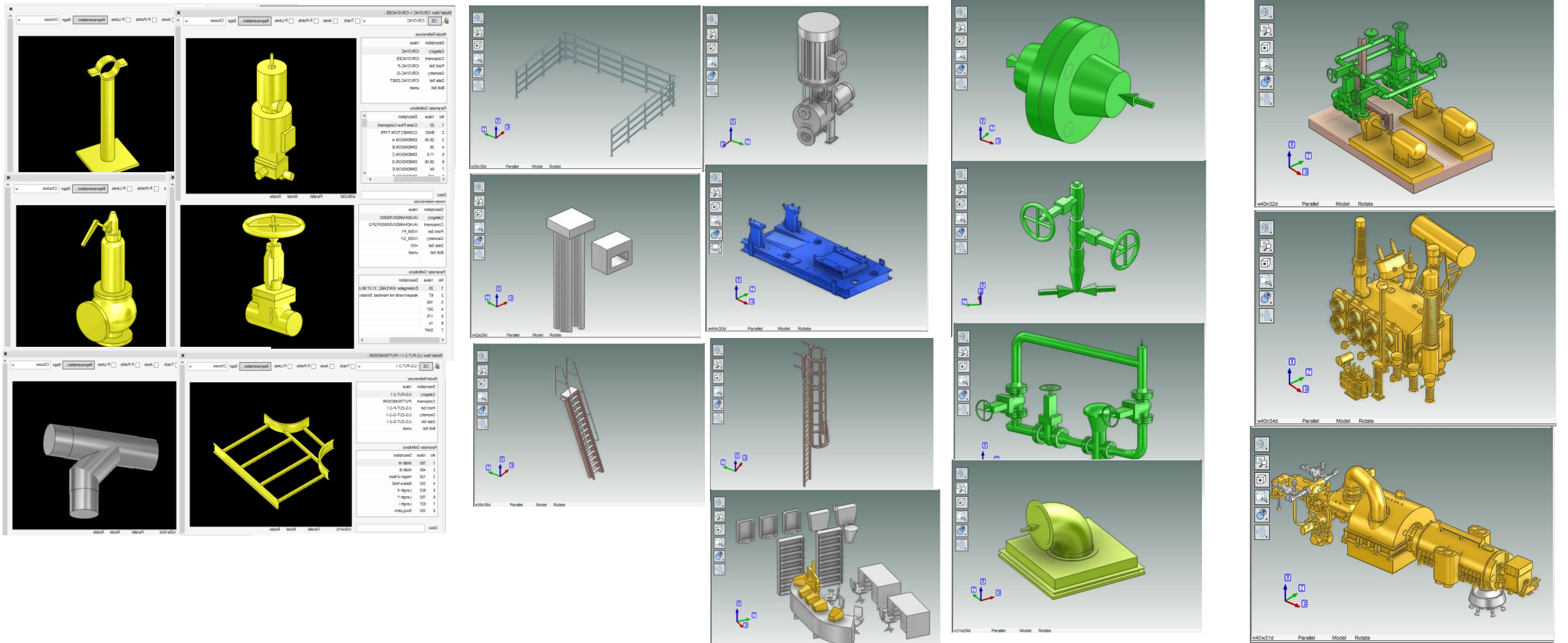
Where axis Name is name of axis and angleValue is angle

POS PA OF CE DIST spool length FROM PL OF PREV

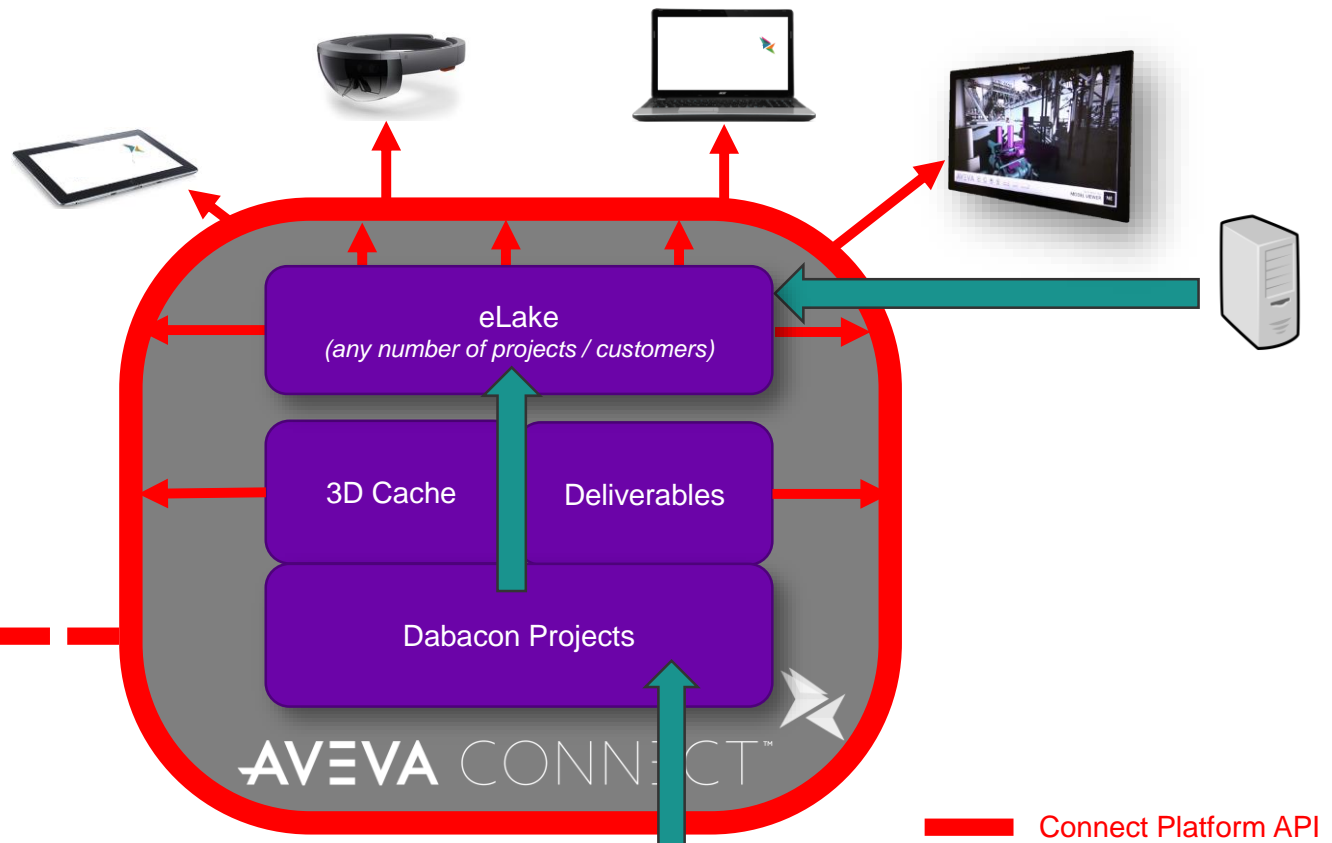
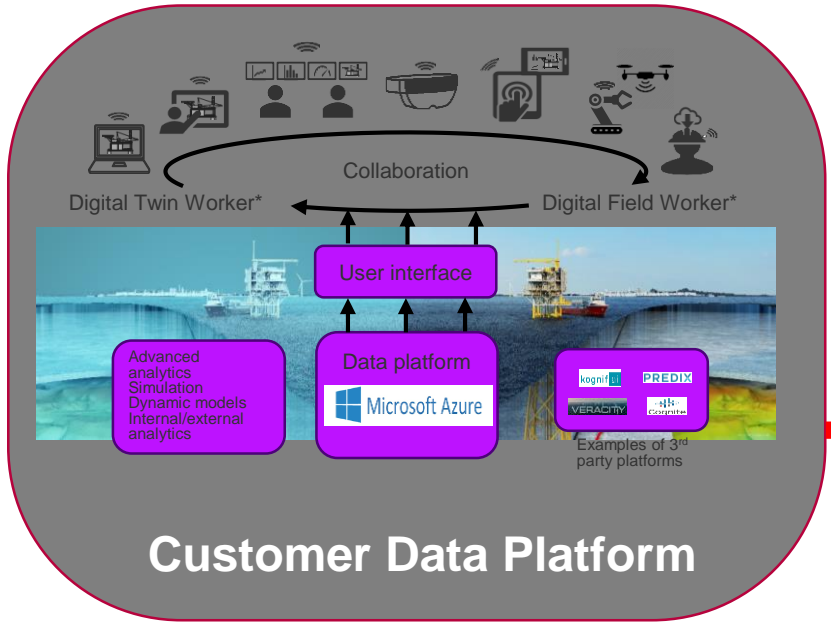
Where spool length is required length of spool

Smart 엔지니어링 - 3D Library 및 Spec 검색 및 유사성 검토

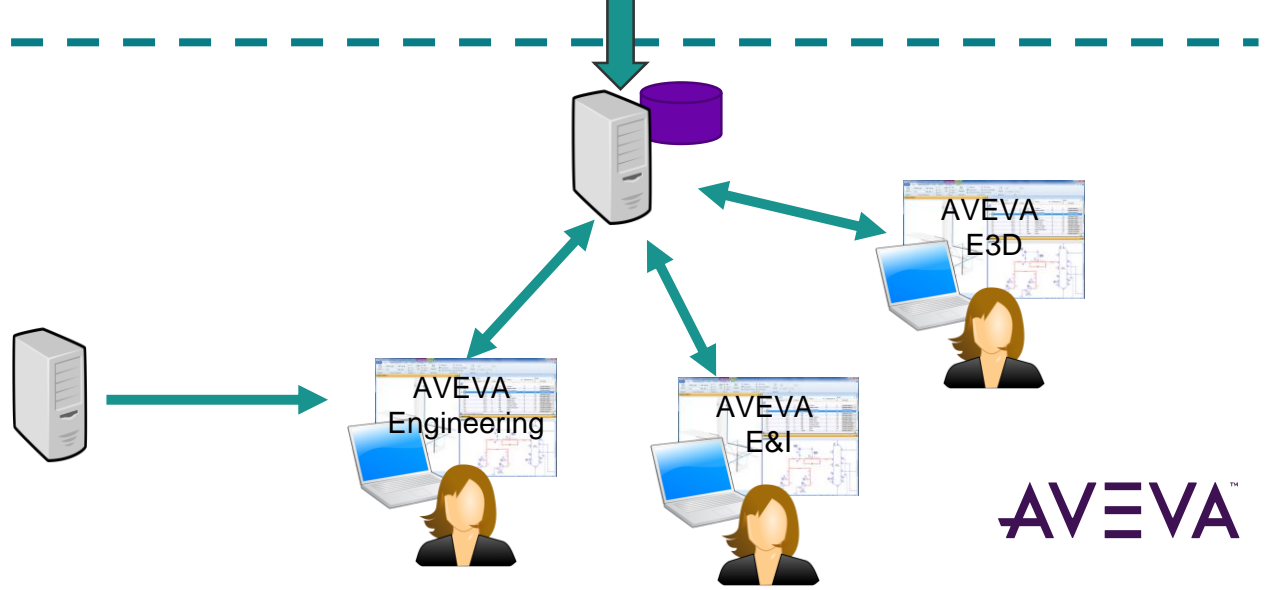
기 수행된 프로젝트를 포함한 전 프로젝트에 대한 Library 검색 및 필터링기능



CLOUD 환경



Cloud
On-premises



Module 화 시공 정의 및 목적

한국 조선 산업의 성공에서 모듈화 공법의 효율성을 학습 해야 함

- Module 화 시공의 이유
 - 노동력 부족 및 건설 현장 기피
 - 인구 감소 및 생산 가능 한 인력 감소-노령화 지속
 - 생산성 향상을 통한 노동력 부족 해결
 - 공정 및 공기 단축
 - 제조업에 비해 EPC 의 경우 제품의 하자 또는 누락으로 인한 공정지연 범위가 훨씬 크다
 - 장소/기후/현장 상황 변화에 영향을 받지 않는다
- 점차 적인 모듈화 적용 프로세서 정의 및 전담 조직 구성
- Module 화 적용을 위한 표준화 작업 및 작업 공정 변화
- 현장 시공을 목적으로 한 설계 업무 변화
- 신기술과의 Integration

SPOOL 중심의 시공 관리

스풀 및 용접 생성 및 삭제 관리
 제작업체와의 충분한 협의 및 Work Scope 정의
 사용하는 틀에 대한 충분한 교육
 일정 변화에 대한 유연한 대응
 신속한 의사 결정

PIPE ISO DRAWING

COMPONENT DESCRIPTION

1. PIPE WELD PE SUS316L TP S 6M 40A
 2. TEE COUPLER SUS316L TP S 6M 40A
 3. FLAG SOFF SUS316L JIS10K 40A
 4. RED-INSERT SUS316L SW BIS 40X15A

5. PIPE WELD PE SUS316L TP S 6M 40A
 6. TEE COUPLER SUS316L TP S 6M 40A
 7. FLAG SOFF SUS316L JIS10K 40A
 8. RED-INSERT SUS316L SW BIS 40X15A

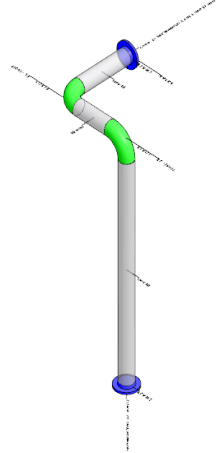
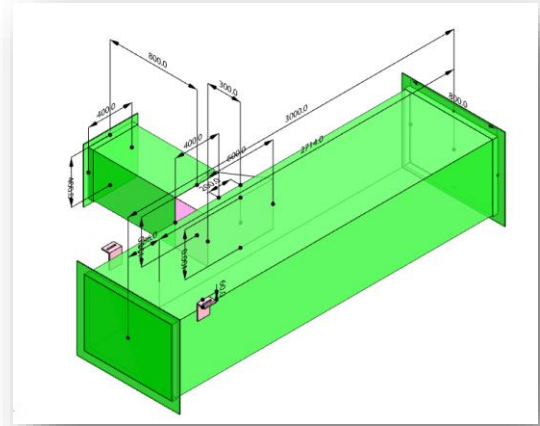
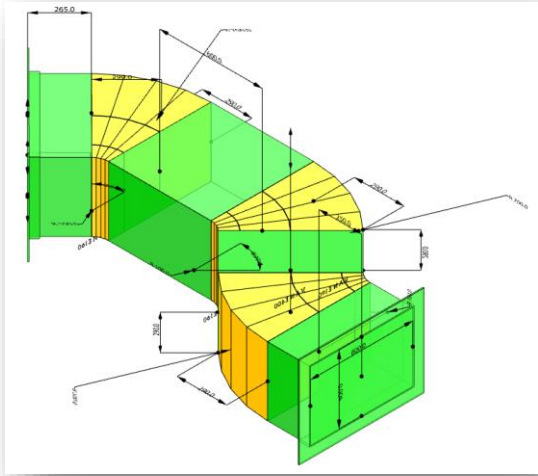
PIPE SPOOL FABRICATION DRAWING

SPOOL INFORMATION							PROJ.	DRAWING NO.
							H9201	DN100P001
PIPE PIECE NO.	STAGE	PAINT	WTG(kg)	QTY	REV.	SPEC.		
127CB-RC001-4	C27C	P1NO	25.320	1	00	A1A		
NO.	DESCRIPTION	MATL. CODE	LENGTH	WTG	QTY			
1	PIPE WELDED PE SUS316L TP S 6M 40A	PPFSWEEP08	600	3.48	1			
2	PIPE WELDED PE SUS316L TP S 6M 40A	PPFSWEEP08	884	3.41	1			
3	PIPE WELDED PE SUS316L TP S 6M 40A	PPFSWEEP08	5	0.02	1			
4	PIPE WELDED PE SUS316L TP S 6M 15A	PPFSWEEP22	270	0.28	1			
5	FLAG SOFF SUS316L JIS10K 40A	PPFGN00869	4	1.60	1			
6	TEE COUPLER SUS316L SW S 40A	PTRENEC069	64	1.70	1			
7	FLAG SOFF SUS316L JIS10K 40A	PPFGN00869	4	1.60	1			
8	RED-INSERT SUS316L SW BIS 40X15A	PPFSNHCC02	16	0.41	1			
9	FLAG SOFF SUS316L JIS10K 15A	PPFGN00822	3	0.88	1			

NOTE

NO.	NC BEND INFORM				FLANGE RGT INGLE
	SPR	BSL	TRC	BSR	
1					
2					
3					
4					
5					

CREATED DATE: 2017-07-01
 DESIGNER: SHKIM(010-4588-1799)
 MODEL NAME: S9201-127CB-RC001-4-00



Marine Industry

AVEVA Marine

- 시공중심설계

1. Block 공법

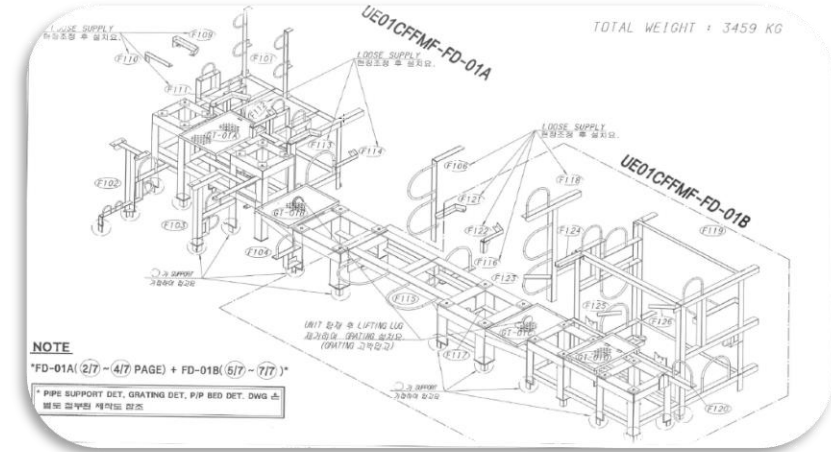
- ✓ Dock 회전롤 상승
- ✓ 생산성 향상

2. 선행의장 / 후행의장

3. 의장 Module화

4. Design Item Name

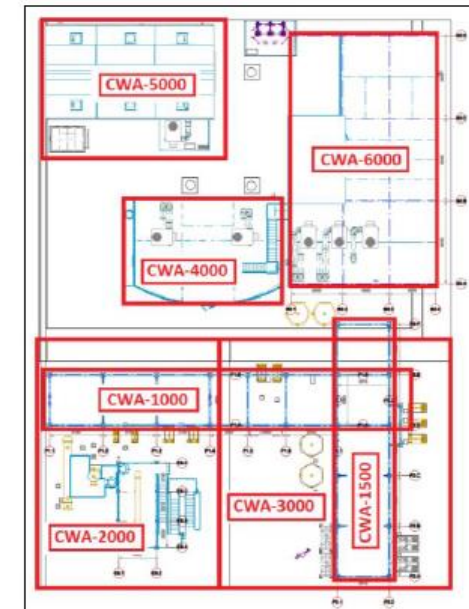
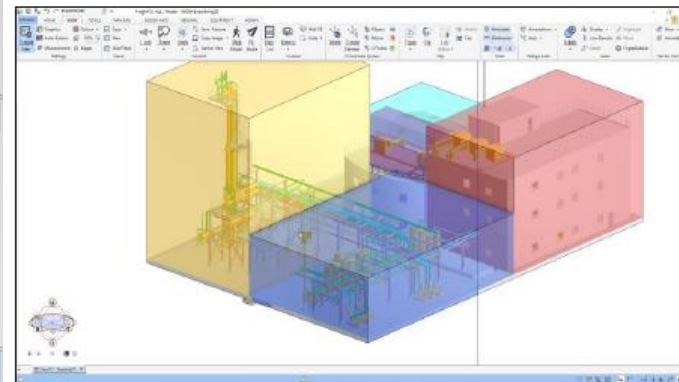
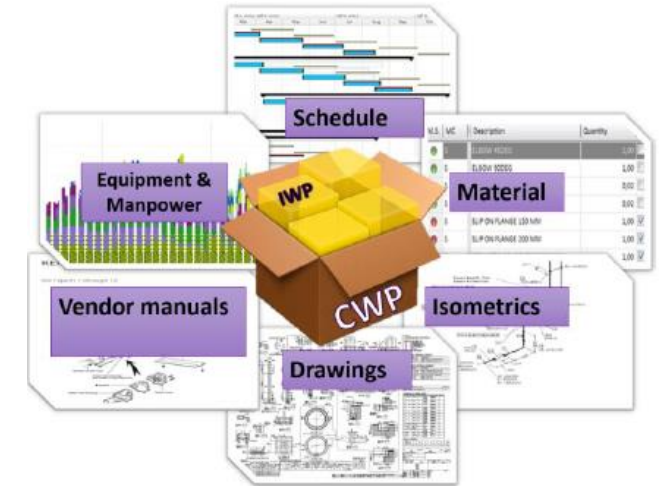
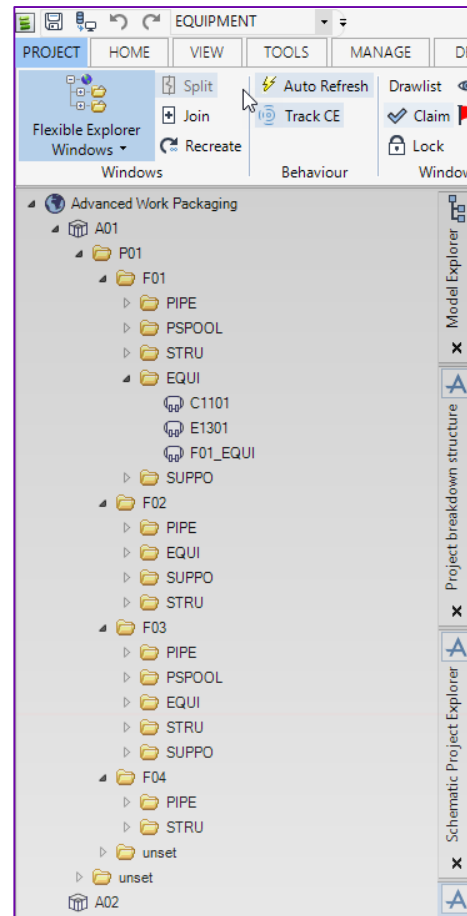
- ✓ Block Info
- ✓ 선행 / 후행 물량
- ✓ 설치정보



Advanced Work Packing(AWP)

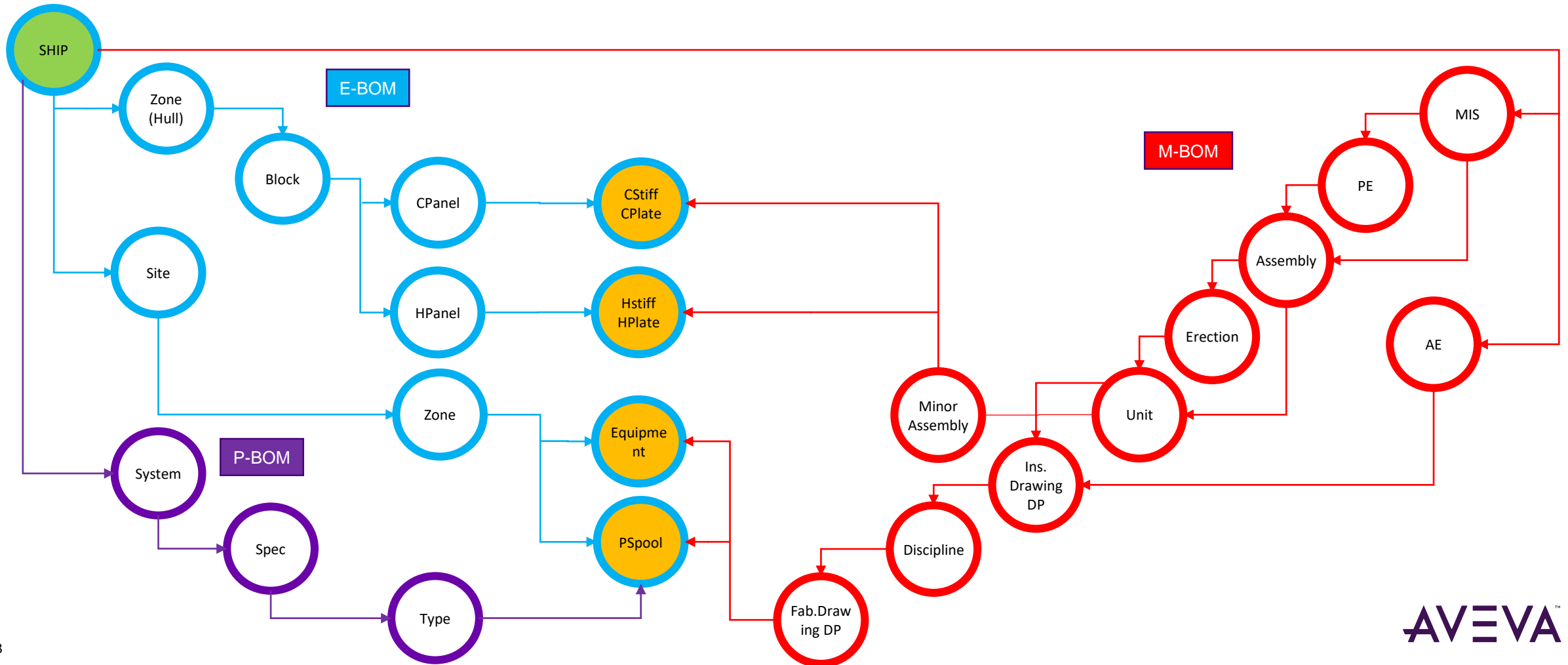
AVEVA Everything3D

- Define Area Scope
 - Construction Work Area
 - Construction Work Package
 - Field Installation Work Package
- Manage evolving 3D multi discipline design
 - By Area Based Definition – Physical Area with Area Volume
 - By User Definition – Logical Area (PML Pseudo)
 - WBS – Flexible Explorer
- Create all the deliverables that derive from 3D
 - Arrangement & detail drawings
 - MTOs
 - 3D models for visualisation & review
- Integration for 4D (Timeline Simulation)
 - With AVEVA ERM & Net & Engage



DATA Model 예)

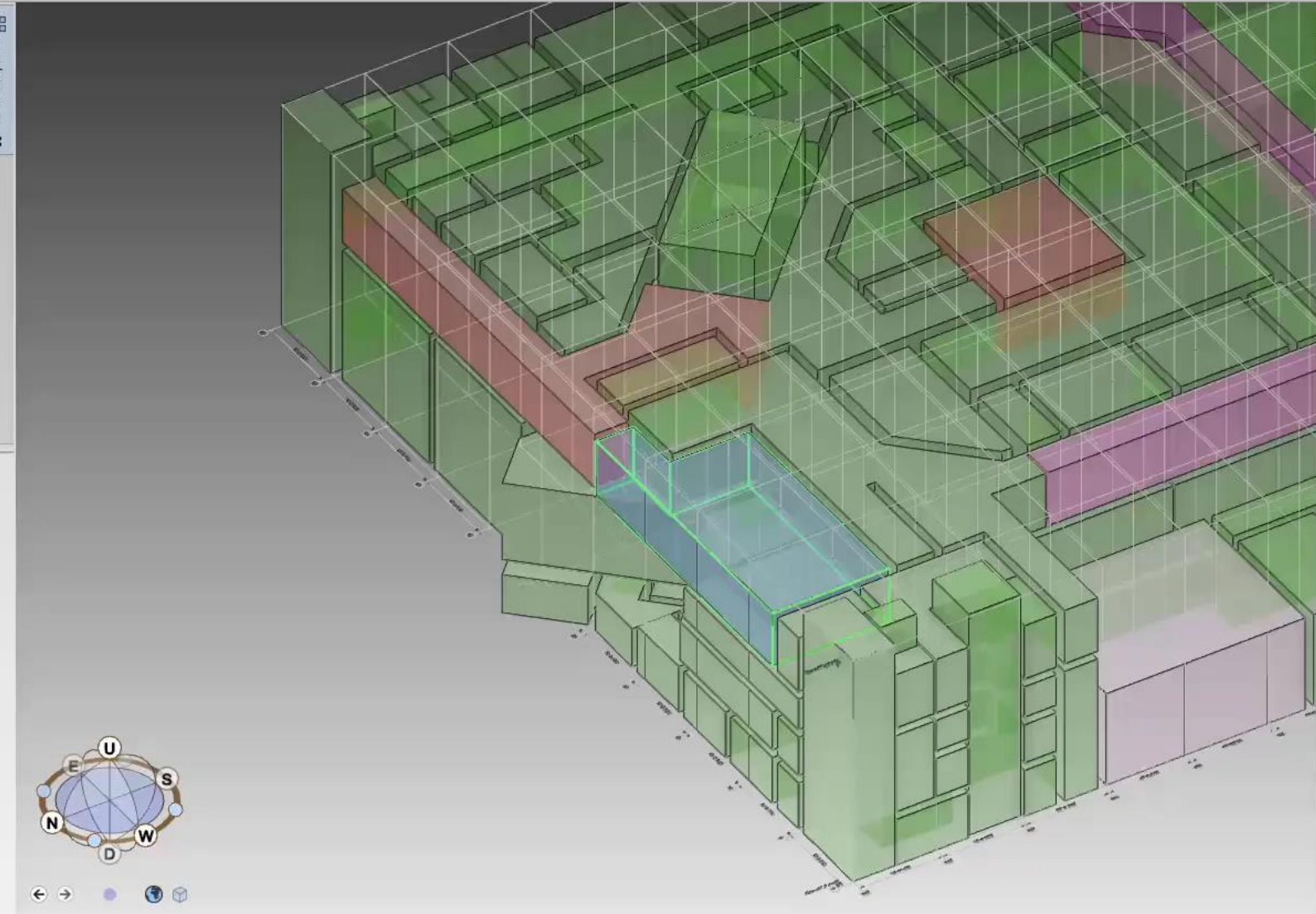
E-BOM – DATA Model



SK Report
SKAc3hemVol

KepcoDesign

- AREA-800/01#A319
- ▶ AREADE AREA-800/01#A319
 - ▶ AREADE AREA-800/01#A318
 - ▶ AREADE AREA-800/01#A317/3
 - ▶ AREADE AREA-800/01#A317/2
 - ▶ AREADE AREA-800/01#A317/1
 - ▶ AREADE AREA-800/01#A315/2
 - ▶ AREADE AREA-800/01#A315/1
 - ▶ AREADE AREA-800/01#A314
 - ▶ AREADE AREA-800/01#A312
 - ▶ AREADE AREA-800/01#A311
 - ▶ AREADE AREA-800/01#A310
 - ▶ AREADE AREA-800/01#A309
 - ▶ AREADE AREA-800/01#A308/2
 - ▶ AREADE AREA-800/01#A308/1
 - ▶ AREADE AREA-800/01#A307/2
 - ▶ AREADE AREA-800/01#A307/1
 - ▶ AREADE AREA-800/01#A306/2
 - ▶ AREADE AREA-800/01#A306/1
 - ▶ AREADE AREA-800/01#A306/2



Properties

Command Window

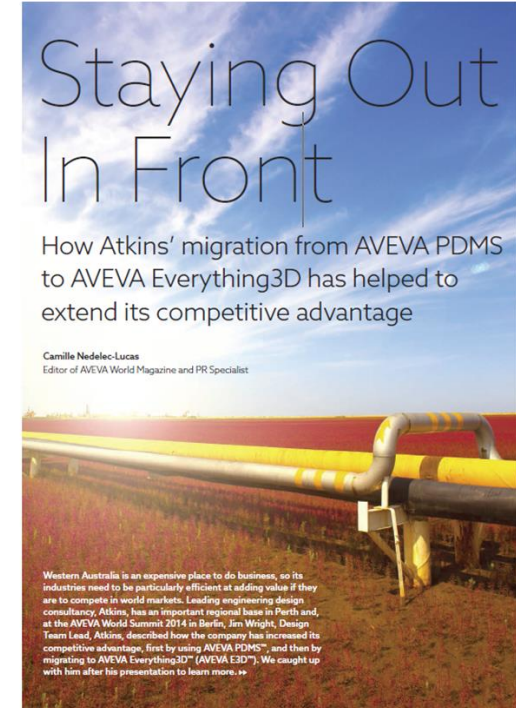
(2,111) Cannot access element type ARE
In line 2 of PML function kepcoadddinarea
add areade

E3D 적용시 비용 절감 효과


구조 설계의 경우는 Max 40 % 절감 가능


Atkins : "It looked easy to use so we trialed AVEVA E3D. We found that getting drawings out in this way would **reduce the delivery time of structural drawings by 40%**"

작업내용	삭감률
설계모델링	Max 20%
- 모델링시간	5%
- 디자인 체크	10_30%
도면작성작업	Max 30%
- ISOME도 작성	0%(PDMS와 동등)
- GA도 신규작성 및 변경수정	50-60%
케이블작업	10-20%
- 루팅작업	30%
- 케이블Length 견적정확도 UP	5-10%(금액)



Q & A

 [linkedin.com/company/aveva](https://www.linkedin.com/company/aveva)

 [@avevagroup](https://twitter.com/avevagroup)

ABOUT AVEVA

AVEVA is a global leader in engineering and industrial software driving digital transformation across the entire asset and operational life cycle of capital-intensive industries.

The company's engineering, planning and operations, asset performance, and monitoring and control solutions deliver proven results to over 16,000 customers across the globe. Its customers are supported by the largest industrial software ecosystem, including 4,200 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 4,400 employees at 80 locations in over 40 countries.

[aveva.com](https://www.aveva.com)