

TRA BIM E DIGITALIZZAZIONE IL FUTURO DELLE COSTRUZIONI

4 LUGLIO 2025 – RESORT MARE PINETA, MILANO MARITTIMA (RA)

GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



Caso studio BIM-MEP nel Farmaceutico

Arch. Luca Paoletti

BIM-VDC Lead

IPS Switzerland/DACH

Co-fondatore SPC

BSc Architecture, University of Camerino, ITA
MA Architecture and Construction, Polytechnic of Turin, ITA
MA in BIM Management for infrastructure
and large investment projects,
University of Barcelona, ESP



SMART
PROJECT
CONSULTING

4 LUGLIO 2025 – RESORT MARE PINETA, MILANO MARITTIMA (RA)

GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Realizziamo progetti attraverso una piattaforma integrata di progettazione, costruzione e qualificazione, concentrandoci sulla rapidità di immissione sul mercato, sul benessere dei pazienti sull'affidabilità della produzione, con il supporto della capitalizzazione di mercato di 1.000 miliardi di dollari di Berkshire Hathaway.



30+ Offices in
23 Countries &
Growing



Life Science
Industry
Focused



Projects Range
from \$1k to
\$4B



2,000+
Experience
Professionals



Internationally
Known SMEs



Best-In-Class
Expertise



Many Employees
Come from Client
Side

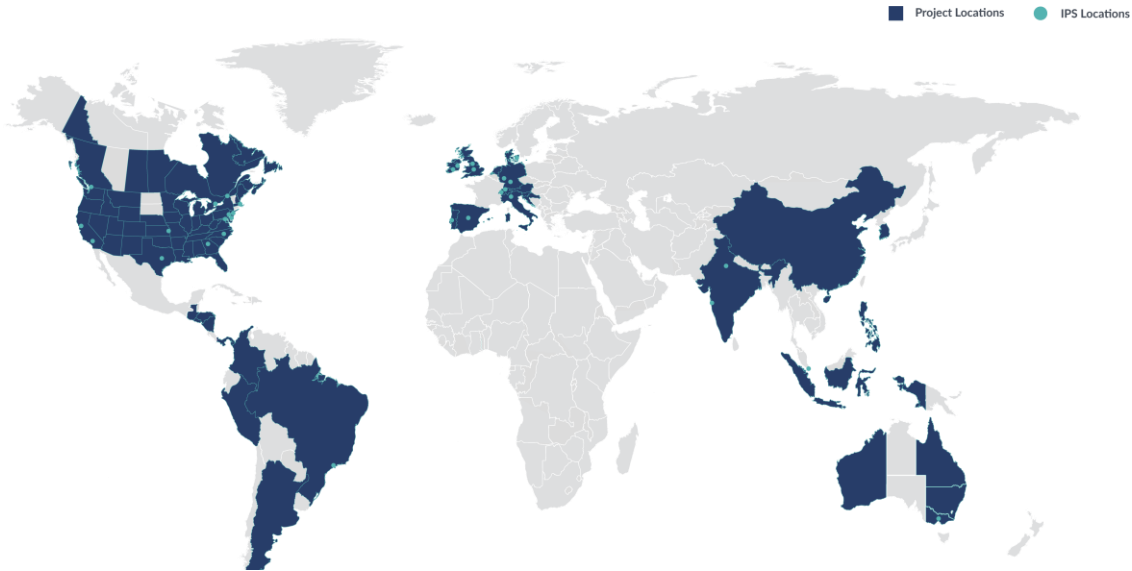


Global
Regulatory
Knowledge



650+ Trained
FDA Inspectors

IPS nel Mondo



Pharmaceutical



Biotechnology & Biomanufacturing



Cell & Gene Therapy



Advanced Therapy Medicinal Products



Animal Health



Medical Device & Diagnostics



Consumer Goods



Science & Technology

31 Locations
14 Countries
2000+ Employees

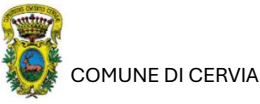
GOLD SPONSOR:



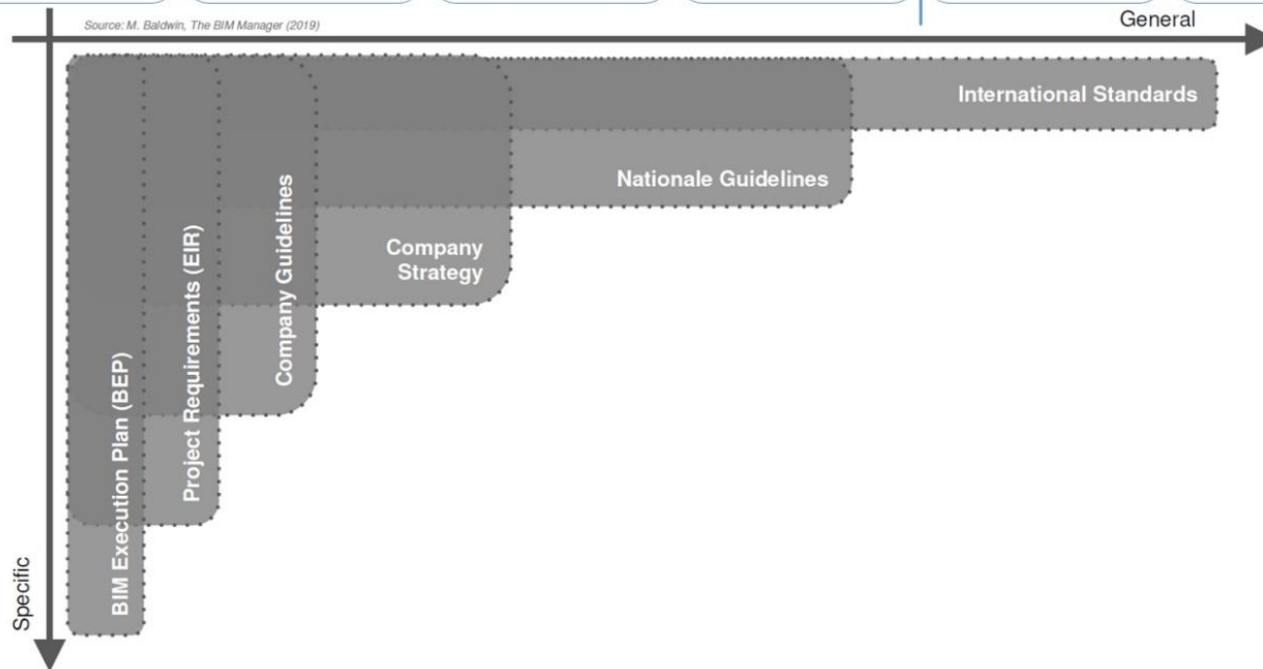
SILVER SPONSOR:



PATROCINIO:



Normativa BIM in Svizzera - LOD-LOIN



Phasen	Teilphasen	Phasenziele	
1 Strategische Planung	11 Bedürfnisformulierung Lösungsstrategien	Bedürfnis, Ziele und Rahmenbedingungen definiert, Lösungs- Strategie festgelegt	///
2 Vorstudien	21 Projektdefinition, Machbarkeitsstudie	Vorgehen und Organisation fest- gelegt, Projektierungsgrundlag- gen definiert, Machbarkeit nach- gewiesen	
	22 Auswahlverfahren	Projekt ausgewählt, welches den Anforderungen am besten entspricht	
3 Projektierung	31 Vorprojekt	Konzeption, Funktion und Wirt- schaftlichkeit definiert	LOIN100
	32 Bauprojekt	Projekt (Platzbedarf) und Kosten optimiert, Termine definiert	LOIN200
	33 Bewilligungsverfahren , Auflageprojekt	Projekt bewilligt, Kosten und Termine verifiziert, Baukredit genehmigt	LOIN300
4 Ausschreibung	41 Ausschreibung, Offertver- gleich, Vergabeantrag	Vergabereife erreicht	
5 Realisierung	51 Ausführungsprojekt	Ausführungsreife erreicht	LOIN400
	52 Ausführung	Bauwerk gemäss Pflichtenheft und Vertrag erstellt	
	53 Inbetriebnahme, Abschluss	Bauwerk übernommen und in Betrieb genommen, Schlussab- rechnung abgenommen, Mängel behoben	
6 Bewirtschaftung	61 Betrieb	Betrieb sichergestellt und optimiert	LOIN500
	62 Erhaltung	Gebrauchstauglichkeit und Wert des Bauwerks für definierten Zeitraum aufrechterhalten	

GOLD SPONSOR:



SILVER SPONSOR:



COMUNE DI CERVIA

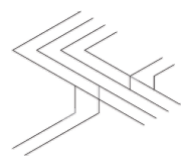
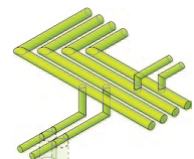
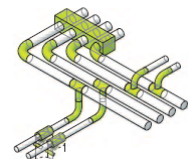
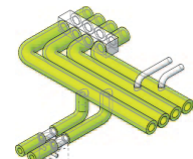
LOD-LOIN

BIM starts with Sales

	Concept Design, Inception Feasibility & Planning	Preliminary & Scheme Design	Detailed Design	Submission to Approving Authority	Tender Stage	Construction	As-built, Facilities Management, Operation
Design Authoring	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
Design Reviews	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
Existing Conditions Modelling	Y/N	Y/N	Y/N			Y/N	Y/N
Site Analysis	Y/N	Y/N	Y/N	Y/N			
3D Coordination			Y/N	Y/N	Y/N	Y/N	
Cost Estimation	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
Engineering Analysis			Y/N	Y/N	Y/N	Y/N	
Facility Energy Analysis			Y/N		Y/N	Y/N	
Sustainability Evaluation	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
Space Programming	Y/N	Y/N	Y/N	Y/N			
Phase Planning (4D Modelling)			Y/N	Y/N	Y/N	Y/N	
Digital Fabrication			Y/N		Y/N	Y/N	
Site Utilization Planning					Y/N	Y/N	
3D Control and Planning						Y/N	
As-Built Modelling						Y/N	Y/N
Project Systems Analysis						Y/N	Y/N
Maintenance Scheduling						Y/N	Y/N
Space Management and Tracking						Y/N	Y/N
Asset Management						Y/N	Y/N

	LOD 100	LOD 200	LOD 300	LOD 350	LOD 400	LOD 500
Short description	Conceptual	Appropriate geometry	Precise geometry	Coordination	Fabrication	As-built
Example						
Engineering phase Pharmaplan	Conceptual Design	Basic Design	Detail Design	Detail Design, Coordination	Detail Design (supplier)	As Built

Wärmeanlage – Wärmehauptverteilung | D5.3 Wärmehauptverteilung

LOG					
LOI	Leitungsschema 3D	Leitungen	Bögen und Anschlüsse Leitungskomponenten	Dämmungen	
Spezifikationsdaten	Vorgaben für Nutzung Leistungsanforderung geforderte Energiewerte Verteilungskonzept	System Material Leistung (berechnet) Anzahl Anschlüsse Befestigung/Trägersystem Anzahl Kombi-Befestigung Brandschutzanforderung Wärmedämmwerte Schalldämmwerte	Leitungsverlauf Teil der Gesamtleistung Wartungs-/Bedienräume Schalldämmwerte Einbausituation technische Spezifikationen	Anschlüsse Ein- und Anbauteile Einbaubehör	Dokumentation
Hersteller- und Produktdaten	Vorgaben seitens Beteiligter	Systeme, Produkte	Hersteller- und Produktangaben der Hauptelemente	Hersteller- und Produktangaben der Komponenten/des Zubehörs	Artikelnummer
Kostendaten	Flächenkosten	Bauteilkosten	Kosten der Bauteile und Einzel- komponenten	Herstellkosten gesamt	Gesamtkosten Betriebskosten
Energiedaten	geforderte Energiewerte	Klassen	Graue Energie	Nachweise	
Facilitydaten	Vorgaben für den Betrieb	Leistungswerte	Elementnummern	Liefer-ID	Nummern der Betriebseinheiten Garantien Lebenszyklen Wartungsinformation

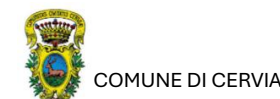
GOLD SPONSOR:

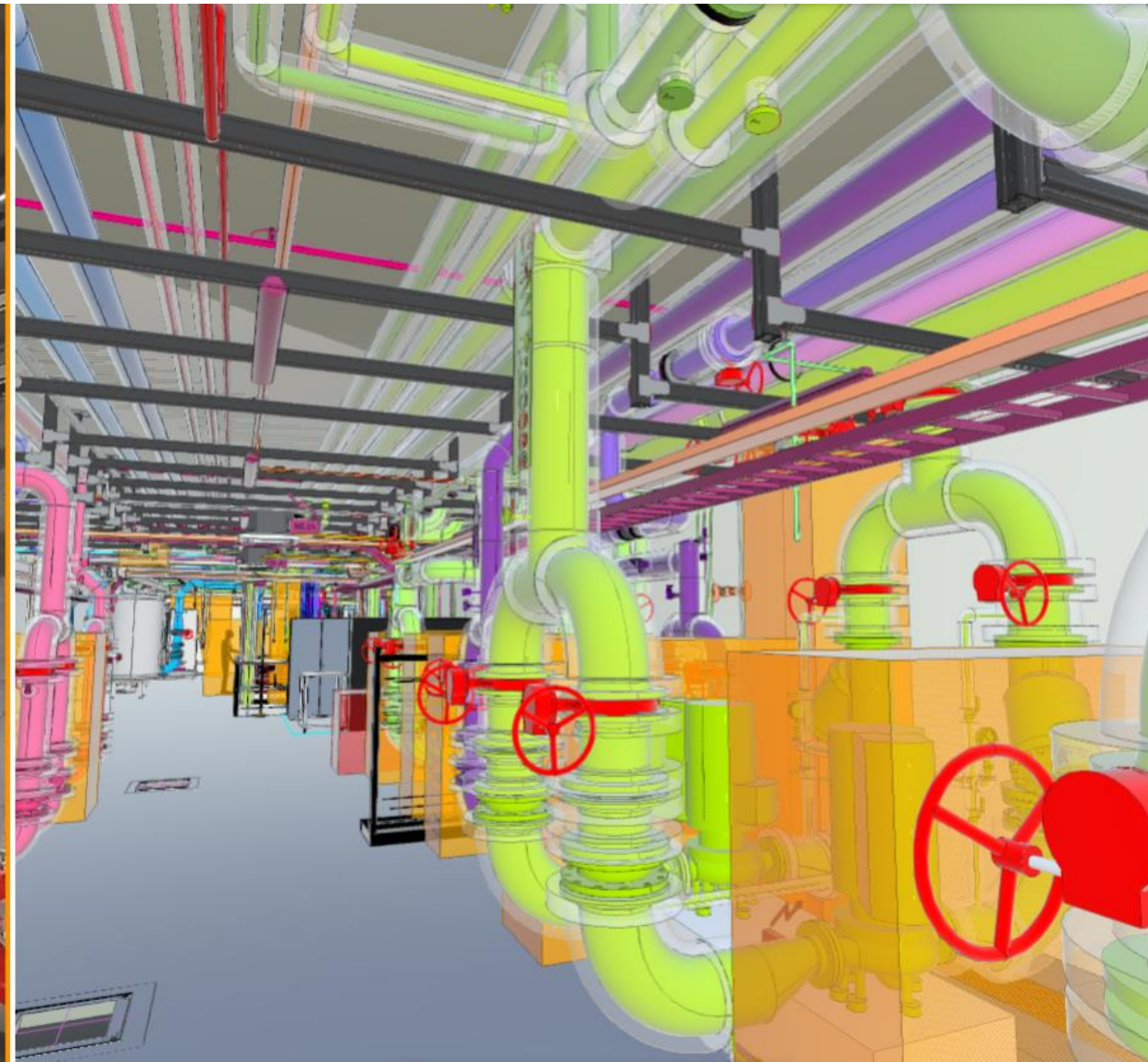
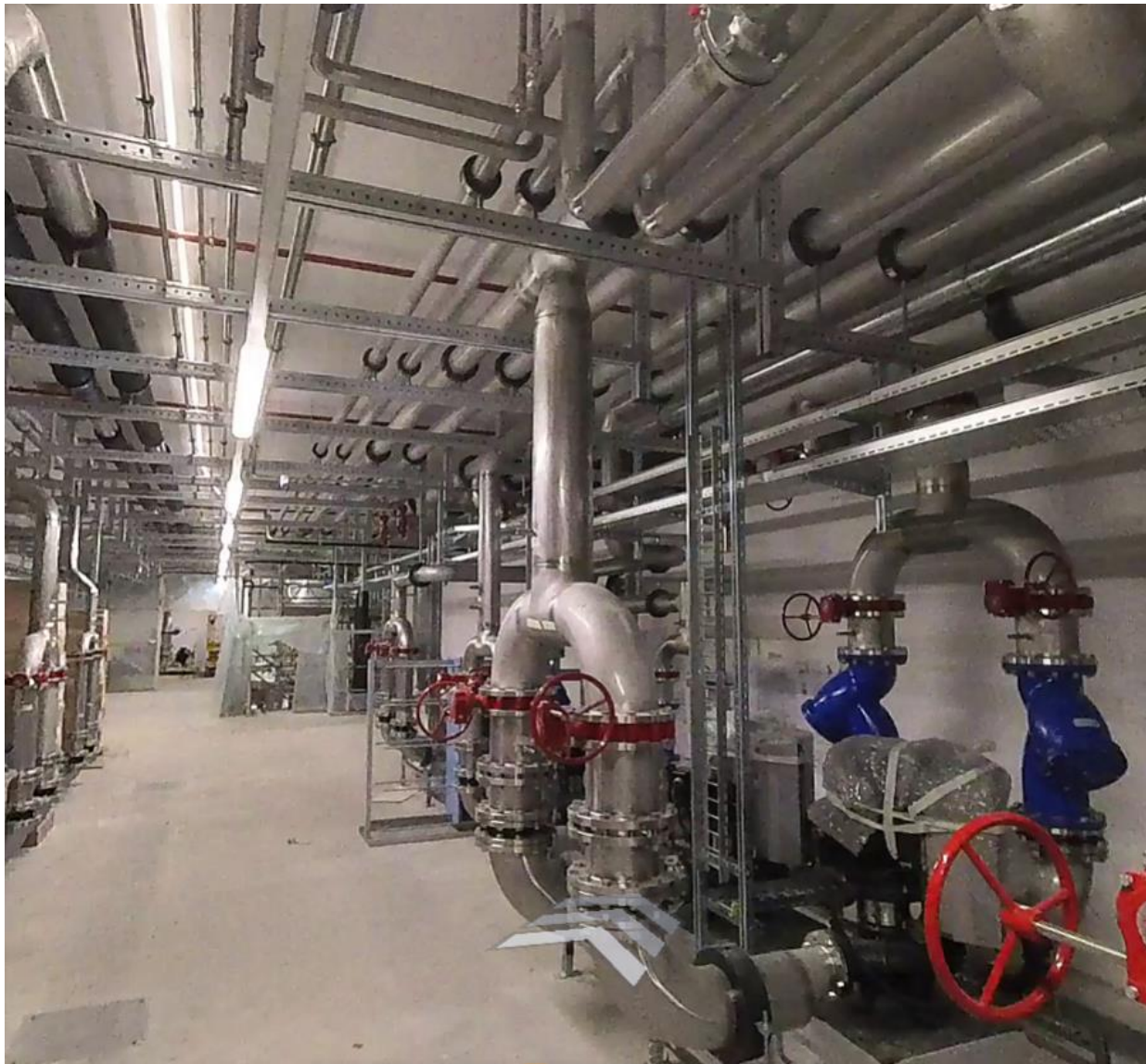


SILVER SPONSOR:



PATROCINIO:





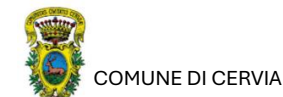
GOLD SPONSOR:



SILVER SPONSOR:

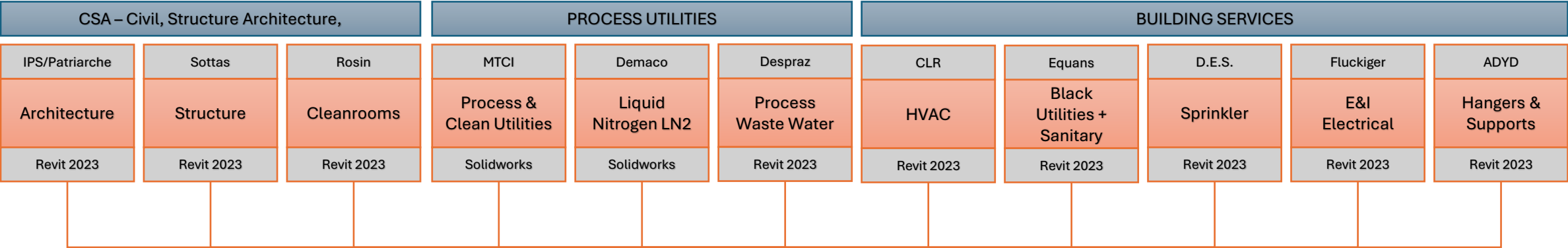


PATROCINIO:

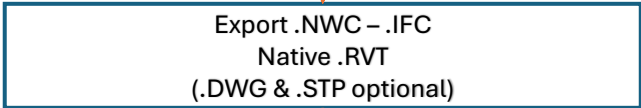


BIM models structure & disciplines

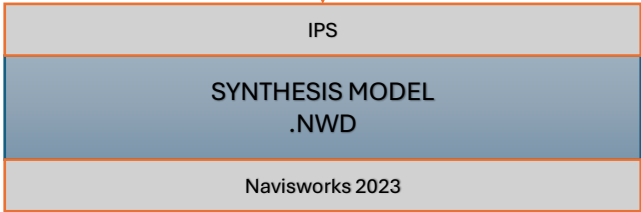
Discipline models



Allowed exchange formats



Federated Coordination Model



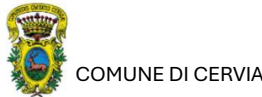
GOLD SPONSOR:

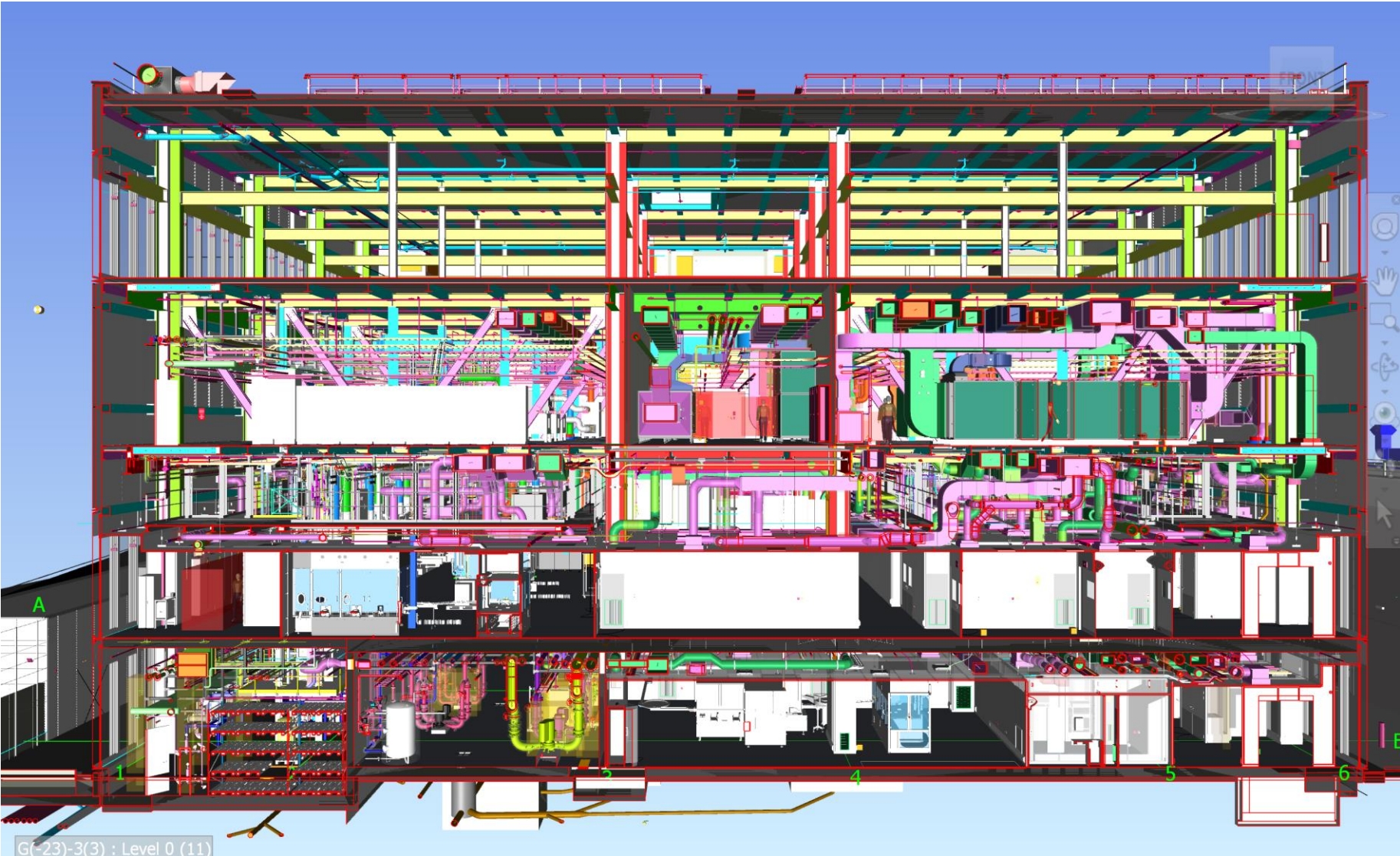
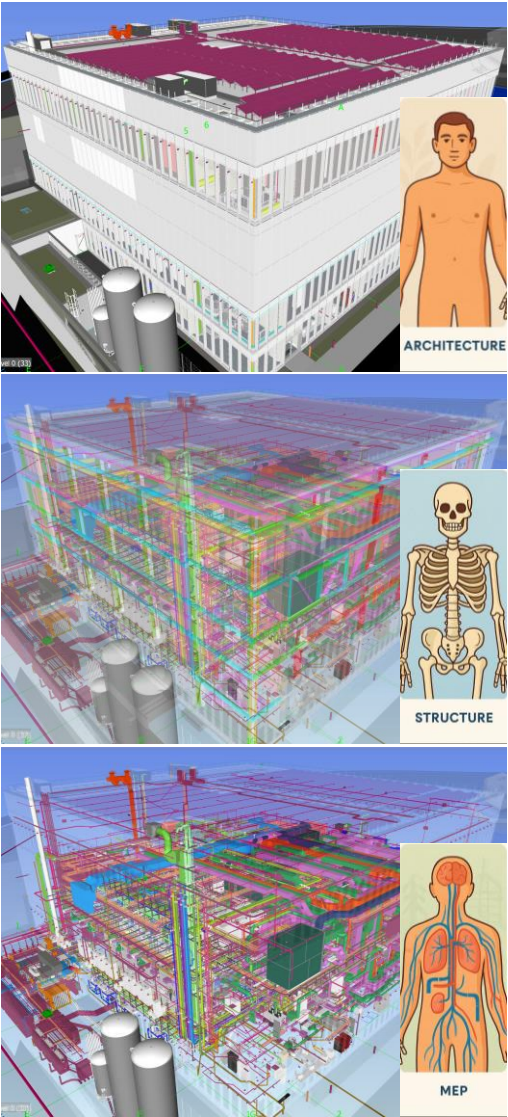


SILVER SPONSOR:



PATROCINIO:





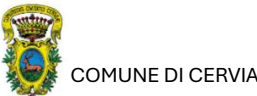
GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



- Structure
- Architecture (must follow RFI process for changes as required)
- Equipment location and Access (must follow RFI process for changes as required)
- Sloped Piping – clean utility, vent, storm, sanitary
- High and Medium pressure ductwork and devices
- Large diameter pressurized pipe mains, valves and devices (DN50 and larger), fire protection mains
- Plumbing (other than systems utilizing gravity)
- Conduit DN50 and greater, power feeds to equipment and all switch gear
- HVAC Piping (other than systems utilizing gravity)
- Fire Protection Distribution (branch lines)
- Low pressure ductwork, grilles, registers, diffusers and associated equipment (location changes must be approved by designers)
- Electrical Distribution Equipment
- Sleeves through rated partitions
- Access panels

GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



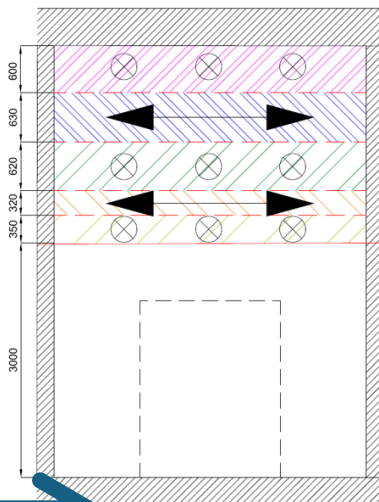
COMUNE DI CERVIA

Coordinamento – Logica realizzativa ed elevation concept

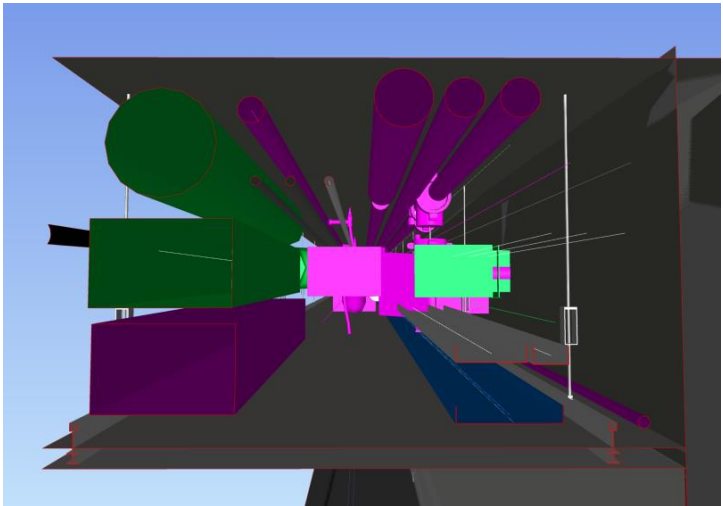
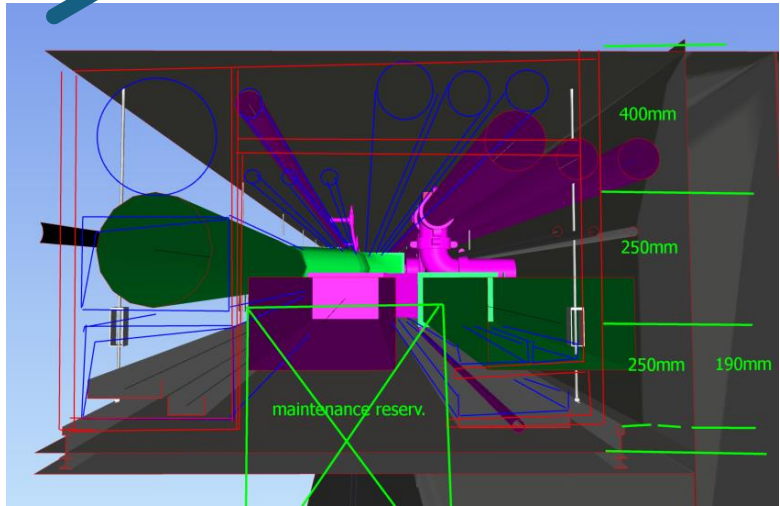
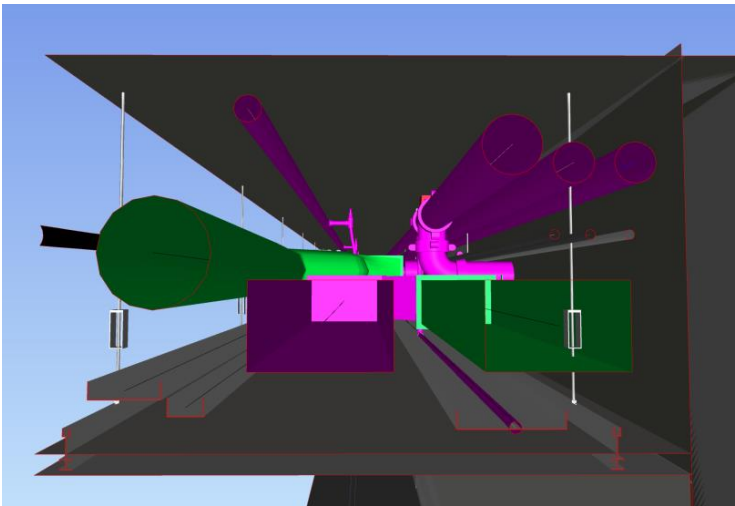
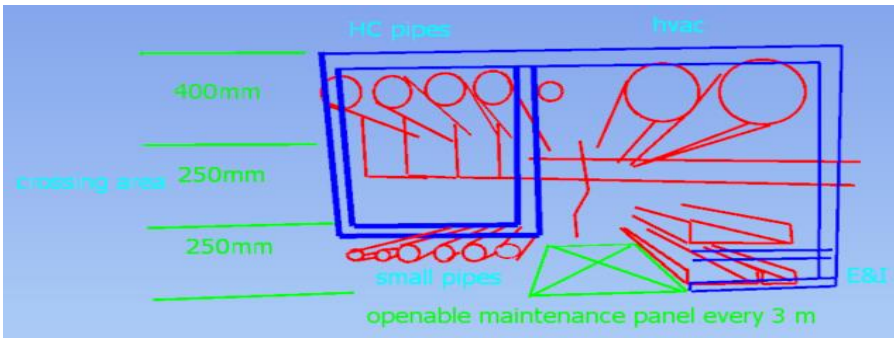
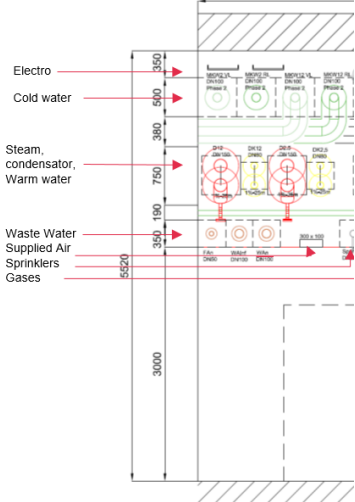
Spaghetti pipes



Logic



Practical example



GOLD SPONSOR:



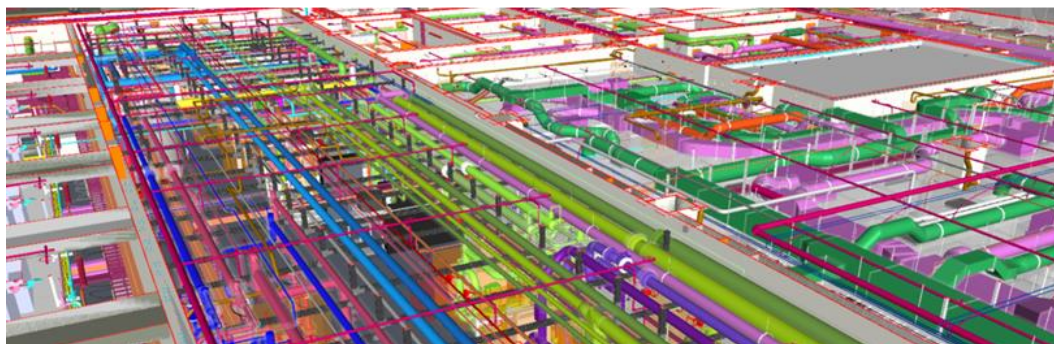
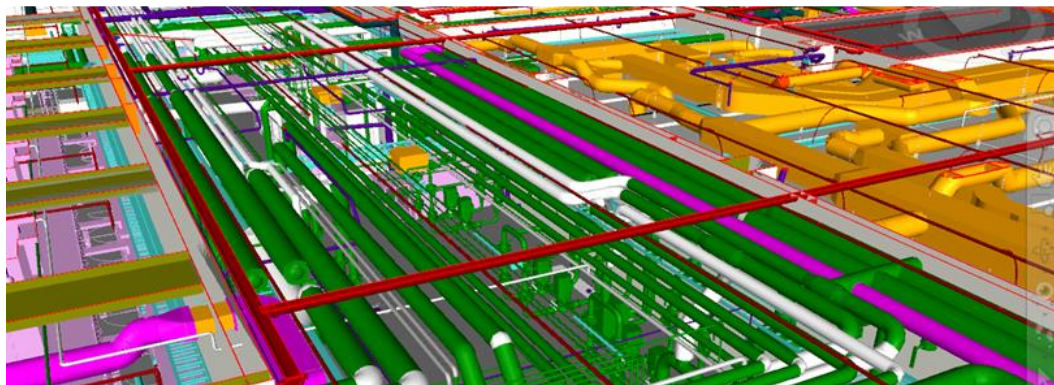
SILVER SPONSOR:



PATROCINIO:



Coordinamento - Media Colour List



Clean Utility	Nitrogen Gas	N2G	250,200,200
Clean Utility	General Vent	AE	150,250,150
Clean Utility	Clean steam	SSAN	250,0,250
Clean Utility	Clean steam condensate	CSAN	200,250,0
Clean Utility	Process Waste	PW	150,100,0
Clean Utility	Pressurised Process Waste	PPW	150,200,150
Clean Utility	Process Compressed Air	PCA	50,250,250
Clean Utility	Reverse Osmosis Water	ROW	50,150,200
Clean Utility	Water for Injection Ambient	WFI20	200,250,250
Clean Utility	Water for injection Hot	WFI80	50,150,250

HVAC	Fresh air	AFR	0,150,250
HVAC	Make-up Air	AMU	50,100,200
HVAC	Supply air	ASU	200,100,200
HVAC	Exhaust air	AEX	250,150,150
HVAC	Return air	ART	100,200,50
HVAC	Specific Air Extraction	ASE	250,100,0

ELEC	Power supply cable trays	PSCT	150,50,100
ELEC	Low voltage cable trays	LVCT	250,150,100
ELEC	Equipment cable trays	EQCT	250,100,150

Black Utility	Chilled Water Supply	CHWS	150,200,0
Black Utility	Chilled Water Return	CHWR	100,150,50
Black Utility	Cooling Tower Water Supply	CTWS	0,150,250
Black Utility	Cooling Tower Water Return	CTWR	0,100,200
Black Utility	Glycoled Water Supply	GLWS	150,250,50
Black Utility	Glycoled Water Return	GLWR	150,200,100
Black Utility	Heat recovery loop Supply	HRLS	250,100,200
Black Utility	Heat recovery loop Return	HRLR	250,150,250
Black Utility	Heating Hot Water Supply	HWS	200,50,100
Black Utility	Heating Hot Water Return	HWR	0,0,250
Black Utility	Plant Steam 4 & 8 Barg	S	250,0,50
Black Utility	Plant Steam condensate	C	250,100,0
Black Utility	Liquid nitrogen	N2L	250,150,200
Black Utility	Liquid Nitrogen Exhaust (Phase Separator) & lvo refreshment	N2E	200,150,250
Black Utility	Nitrogen Relief (Vents)	N2V	200,100,250
Black Utility	Process Cooling Water Supply	COWS	100,0,150
Black Utility	Process Cooling Water Return	COWR	100,50,200
Black Utility	Relief Vent	RV	200,50,250
Black Utility	Instrument air	IA	200,100,50
Black Utility	Waster Water	WW	200,150,0
Black Utility	Softened Water	SFTW	100,250,0

GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

LOG: Level of Graphic

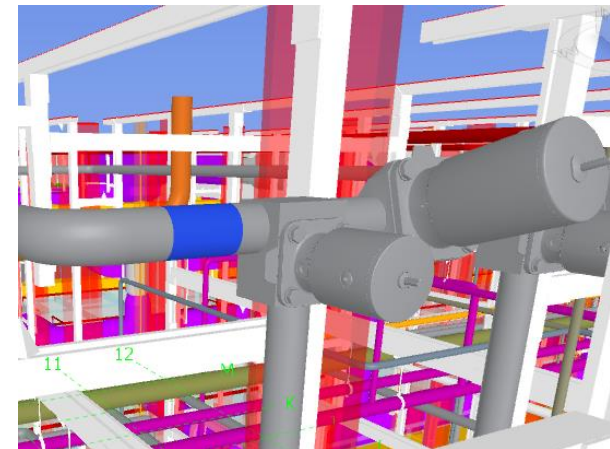
- **Piping and conduit DN10 diameter** and larger shall be modeled; conduit smaller than DN10 dia. must be modeled only if grouped with more than one conduit.
- **Insulation** shall be modeled, and identified separately from the piping, duct, etc.
- All elements requiring **access or clearance** for service or operations shall have a separate solid modeled depicting the area required.
- All **flanges and hubs** shall be represented, either as separate components or included in the overall size of the duct, pipe, or conduit.
- **Hangers and supports** shall be modeled (coordinated on a case by case basis); hangers are to extend into existing supporting substrate.
- **Sleeves** are to be modeled if penetrations through building systems such as cast-in-place concrete and CMU walls require a sleeve per the Specifications (IPS Coordination).
- **Maintenance access areas** and all other code required clearance areas (including Light Fixtures) associated with Model Elements are to be modeled; this is to include all access doors in walls and ceilings (placed by supplier, coordinated by IPS).
- **All equipment** is to be modeled to overall dimensions until the submittals have been approved by the WPO at which time the modeled object shall be replaced with the accurate modeled object from the manufacturer.

LOI: Level of Information (model intelligence)

Parameters to be assigned to 3D element

- Object type (pipe/fitting/component etc)
- System Name
- Pipe/fitting/component Size
- Spec code
- Insulation Type
- Insulation Thickness
- Line number (aligned to P&ID)
- Component Tag (aligned to P&ID)
- Building level (if possible)

Example:



Properties	
Item	Material
Entity Handle	TimeLiner
AutoCad	
Property	Value
EntityTransparency	ByLayer
Material	ByLayer
Class	Pipe
PnPGuid	57f45e14-3801-4ca6-af7c-270bcb792f79
Long Description	Pipe DIN 11866-B
Plant Material	Stainless Steel
Material Code	500HB
Size	40
Status	New
End Type	PL
Wall Thickness	2
Spec	LH089
Insulation Thickn...	40
Service	CIP/S
Line Number	716-CIP/S-A503-200-45
Length	72.474938

LOIN = Level of Information needed (former LOD)

GOLD SPONSOR:



SILVER SPONSOR:

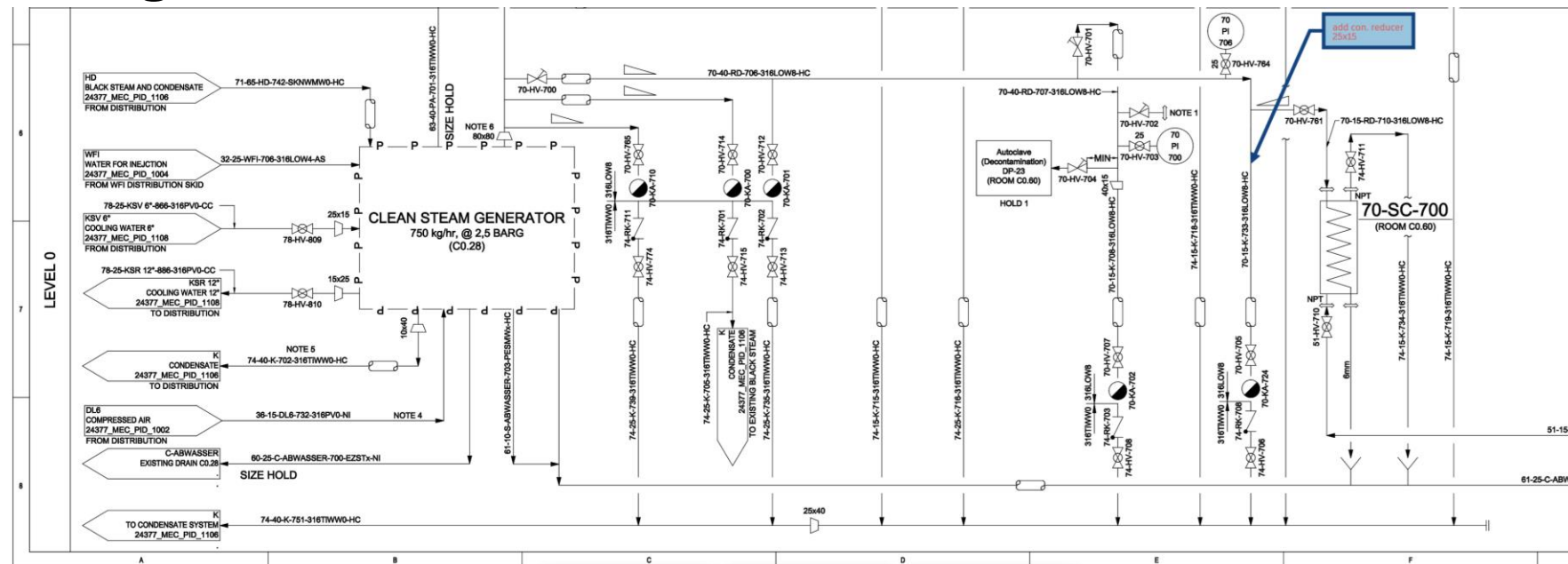


PATROCINIO:



COMUNE DI CERVIA

Impianti - Design and Construction



EQUIPMENT INFORMATION

PROCESS UTILITIES

REV.	EQUIPMENT NAME	DESCRIPTION (CAPACITY, MODEL)	AREA	ROOM	NEW / EXISTING	DIMENSIONS (LxDxH mm)	MAX WEIGHT (kg)	CIP (l/min)	COMPRESSED AIR (CIP CLEARANCE) (Nm ³ /h@ 7 barg)	DRYING HOT AIR (m ³ /h) 20ACR/10min	NATURAL GAS (MWh)	PROCESS WASTE DRAIN (l/min)
A	Blender 2	1000L	Production	Blender Room 2	NEW	1200x1200x1770		80	N/A	120	N/A	80
A	Packing line 1		Production	Packing Room 1	NEW	10000x3000x1500		45	N/A	5400	N/A	45
A	Packing line 2		Production	Packing Room 2	NEW	10000x3000x1500		45	N/A	5400	N/A	45
A	Packing line 3 (Future Extension)		Production	Packing Room 1	NEW	10000x3000x1500		45	N/A	Awaiting information	N/A	45
A	CIP Circulation Tank (Packing)	1000L (TBD next phase)	Production (TBC)	Packing Room (TBC)	NEW	TBC	1700	N/A	N/A	N/A	N/A	N/A
A	CIP Detergent Injection Tank (Packing)	1000L (TBD next phase)	Production (TBC)	Packing Room (TBC)	NEW	TBC	1700	N/A	N/A	N/A	N/A	N/A
A	CIP Feed Water Heater (Packing)		Production (TBC)	Packing Room (TBC)	NEW	TBC		N/A	N/A	N/A	N/A	N/A
A	Green Dryer	1000L	Production	Green Dryer Room	NEW	1250x1250x3200		100	N/A	600	N/A	100
A	Emulsion Vessel GD	250L	Production	Green Dryer Room	NEW	800x800x800		100	N/A	60	N/A	100

GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



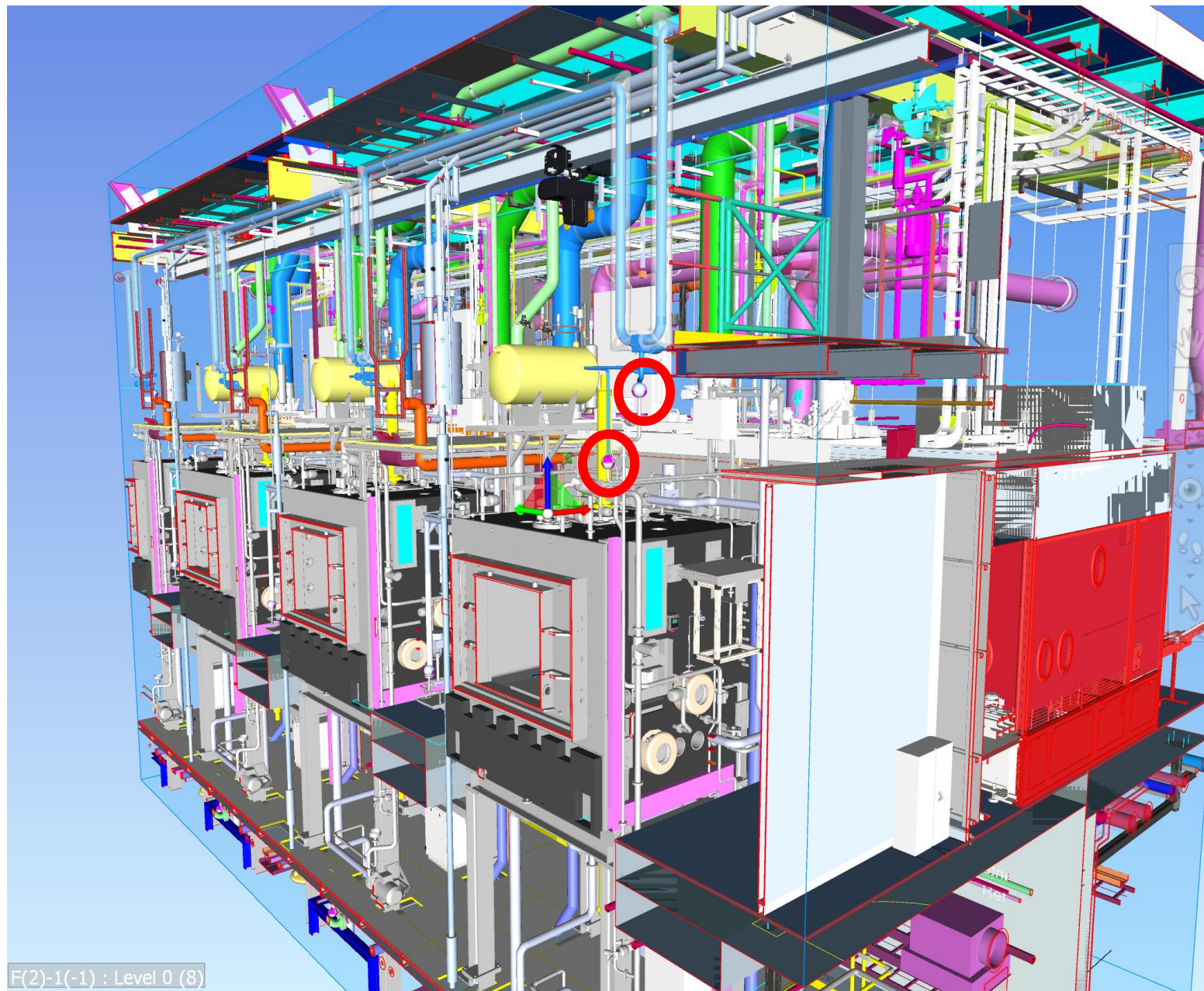
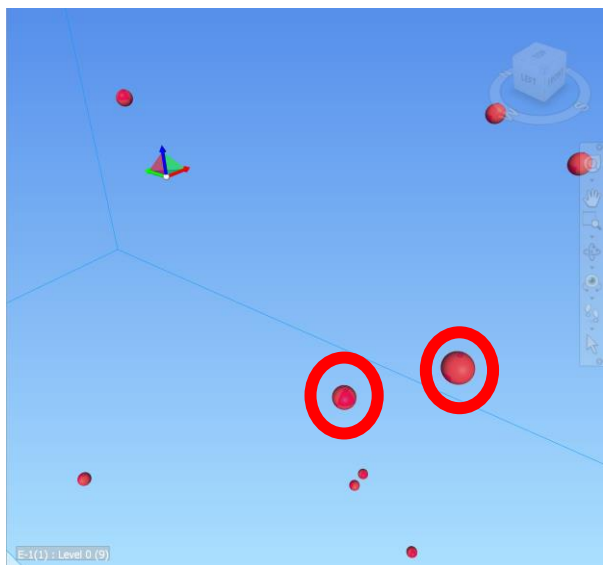
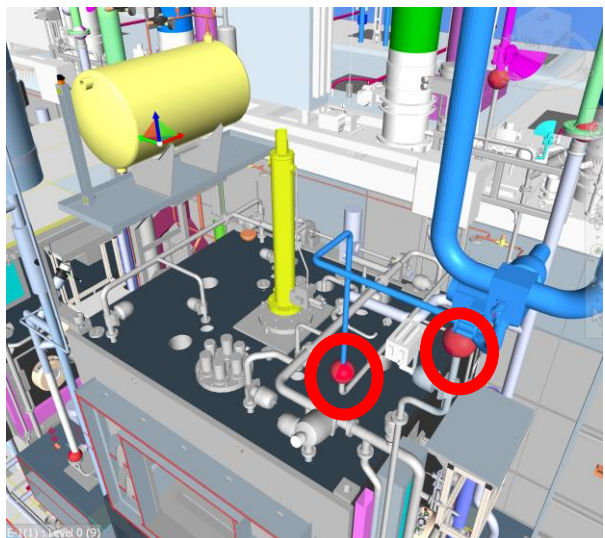
Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Impianti - POU



F(2)-1(-1) : Level 0 (8)

GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



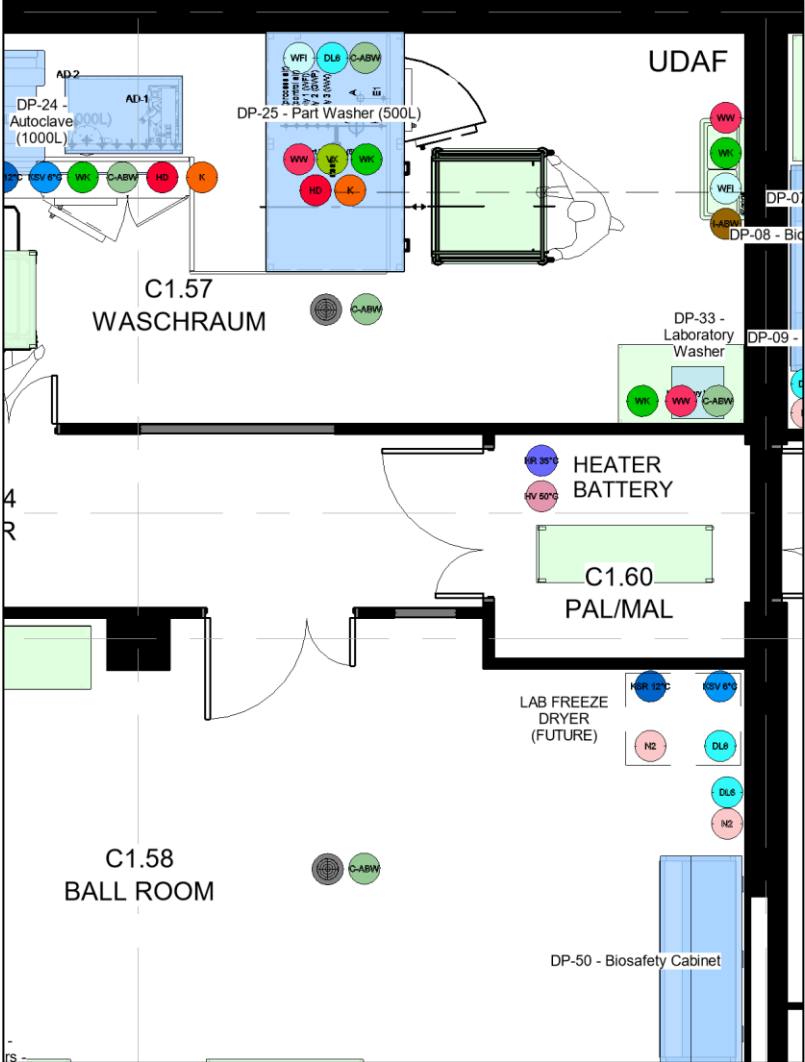
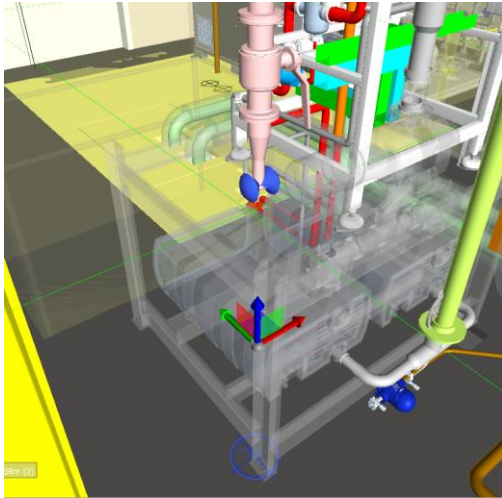
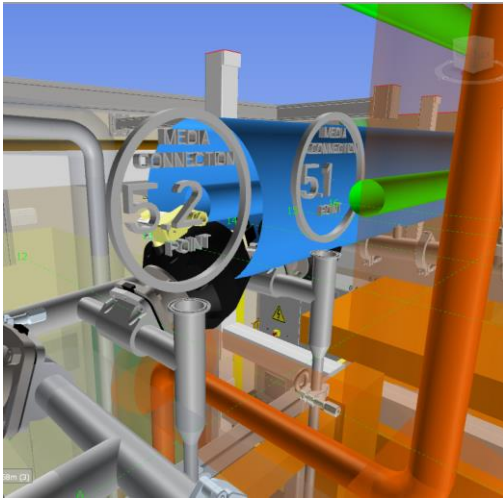
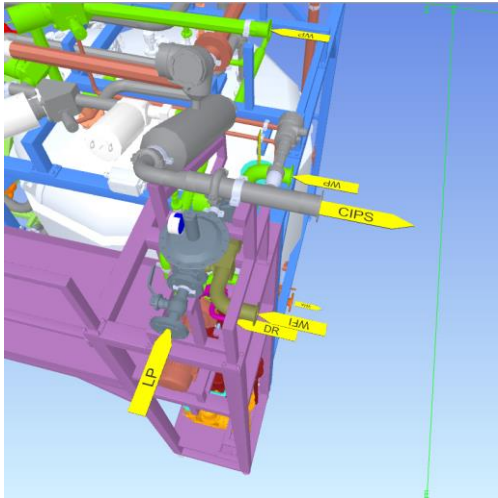
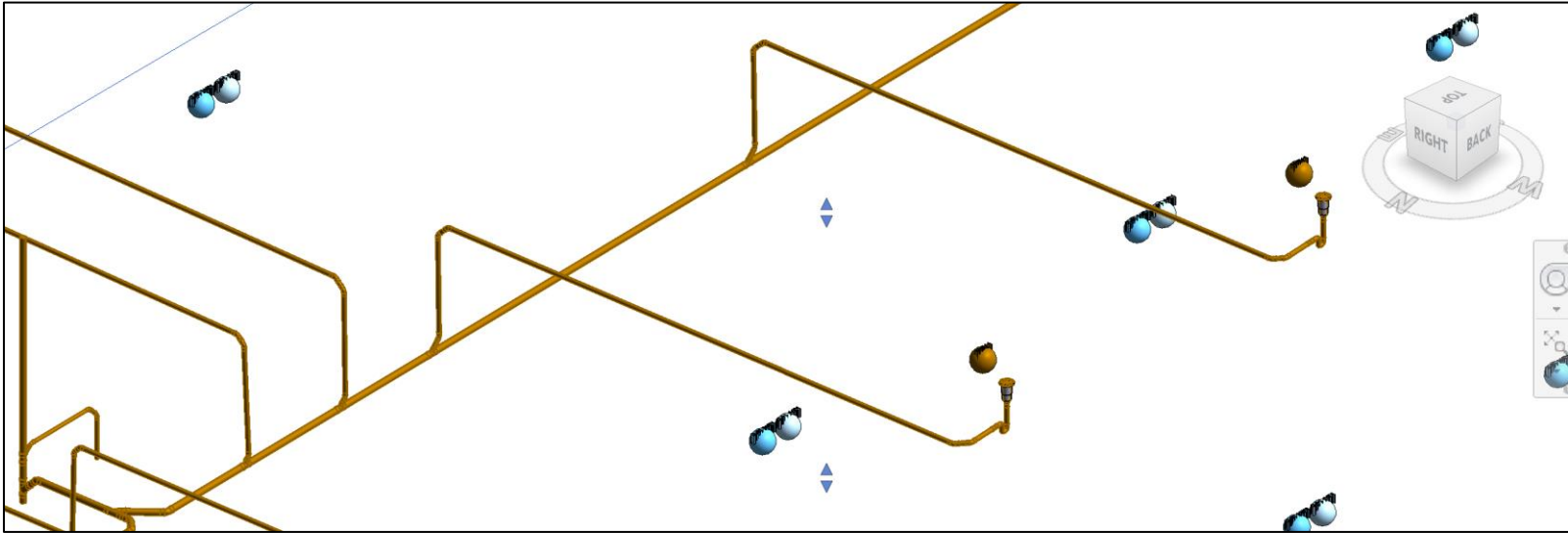
Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Impianti - Points of Use Layouts



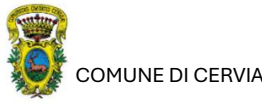
GOLD SPONSOR:

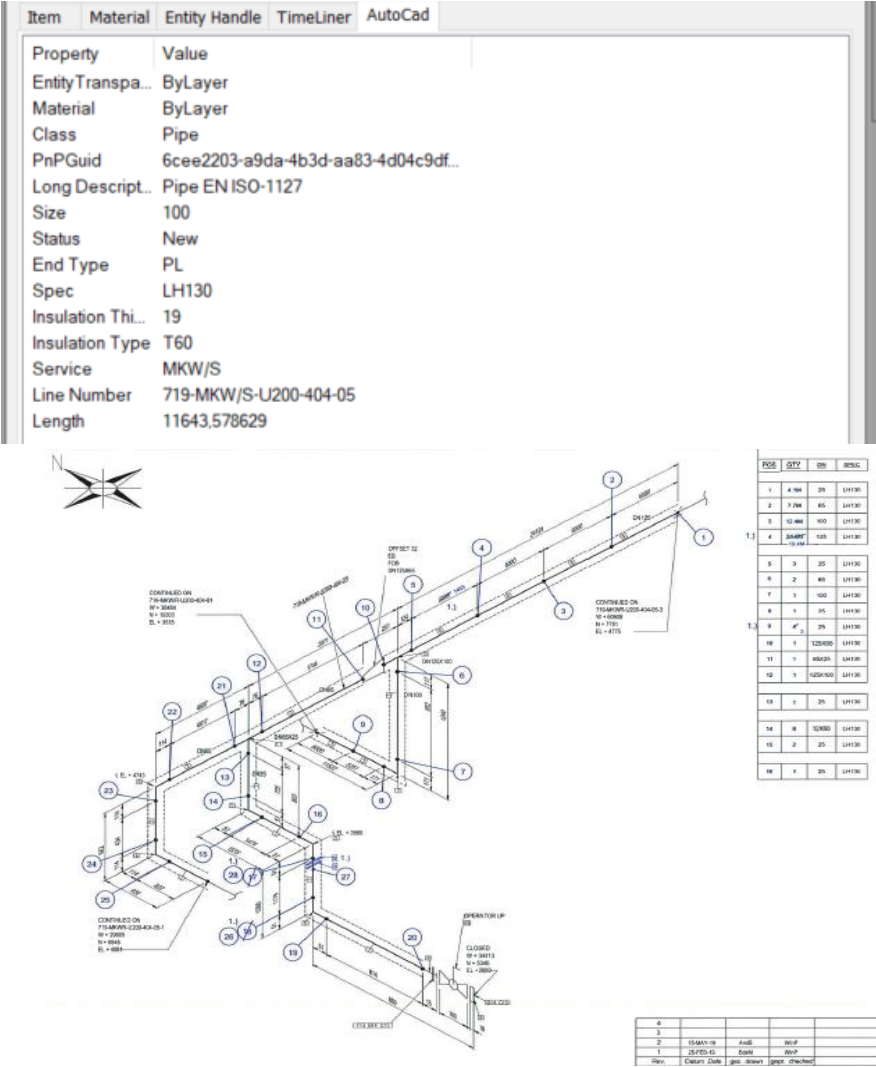
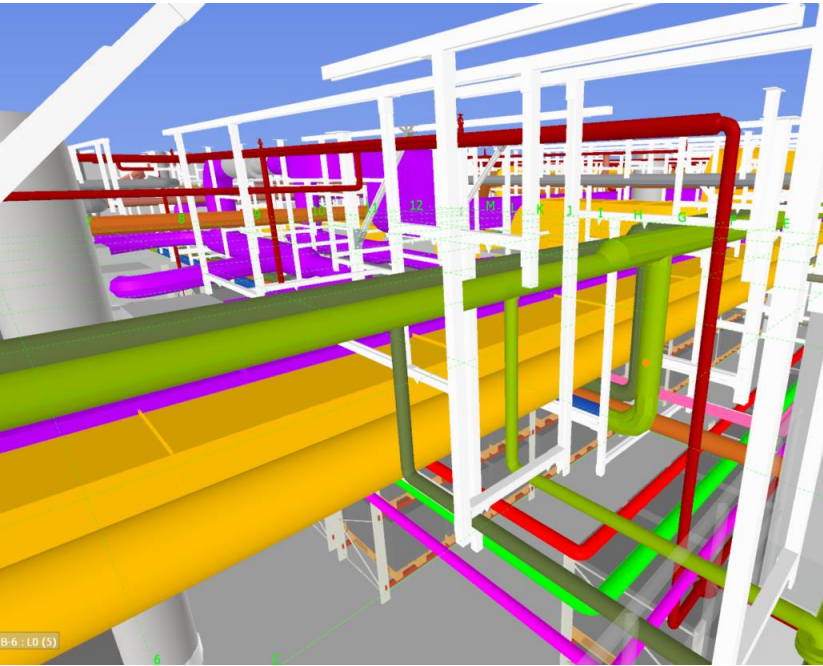
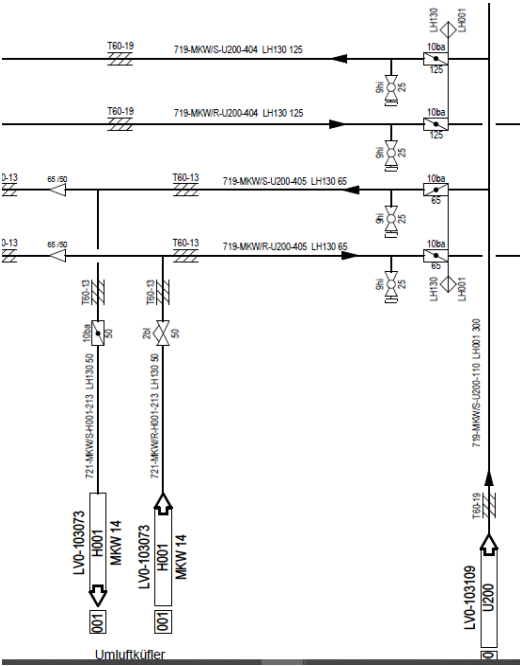


SILVER SPONSOR:



PATROCINIO:





N

CONFIRMED ON

719-MKW/S-U200-404-05

W = 2000

H = 1000

SL = 1000

CONFIRMED ON

719-MKW/S-U200-404-05

W = 2000

H = 1000

SL = 1000

CONFIRMED ON

719-MKW/S-U200-404-05

W = 2000

H = 1000

SL = 1000

1

4

84

25

LH130

2

7

706

65

LH130

3

12

446

100

LH130

4

24

697

125

LH130

5

3

25

LH130

6

2

65

LH130

7

1

100

LH130

8

1

35

LH130

9

4

25

LH130

10

1

125

LH130

11

1

600

LH130

12

1

1250

LH130

13

1

25

LH130

14

8

1000

LH130

15

2

25

LH130

16

1

25

LH130

6

2

1000

1000

1000

7

2

1000

1000

1000

8

2

1000

1000

1000

9

2

1000

1000

1000

10

2

1000

1000

1000

11

2

1000

1000

1000

12

2

1000

1000

1000

13

2

1000

1000

1000

14

2

1000

1000

1000

15

2

1000

1000

1000

16

2

1000

1000

1000

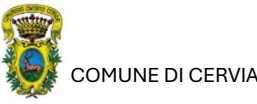
GOLD SPONSOR:



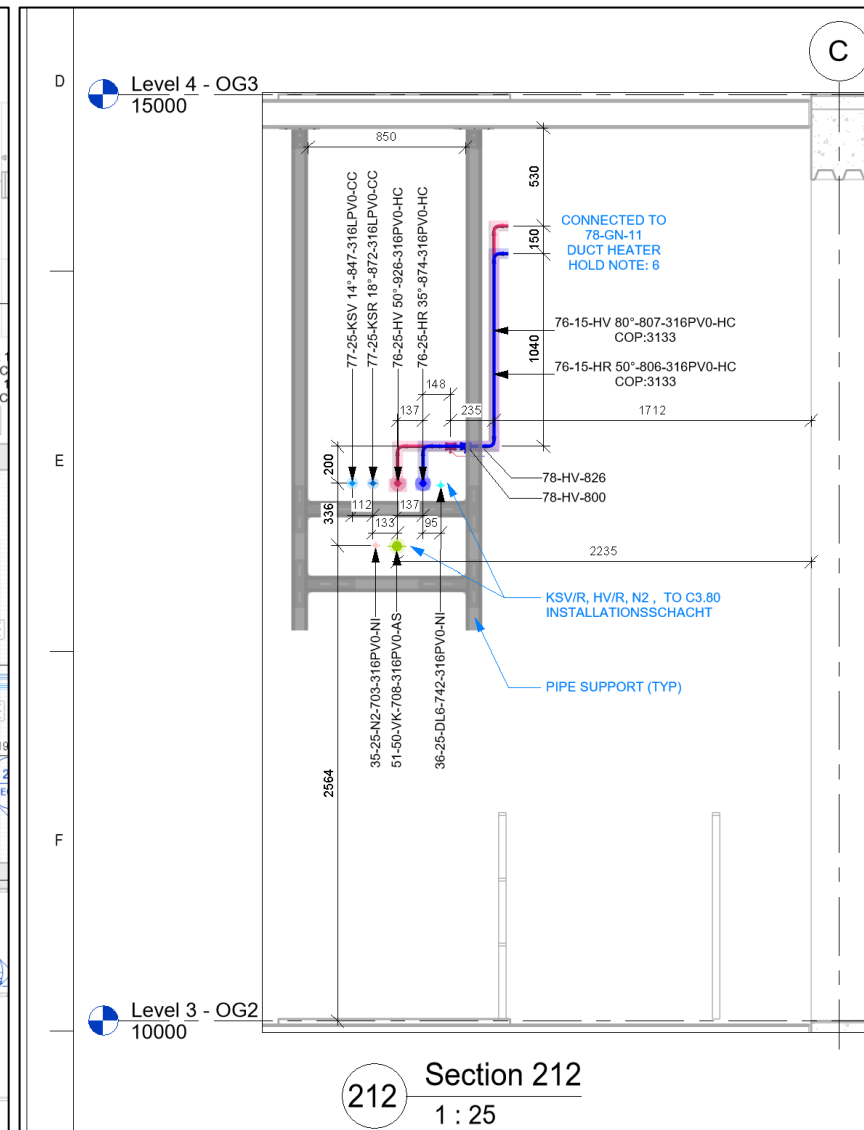
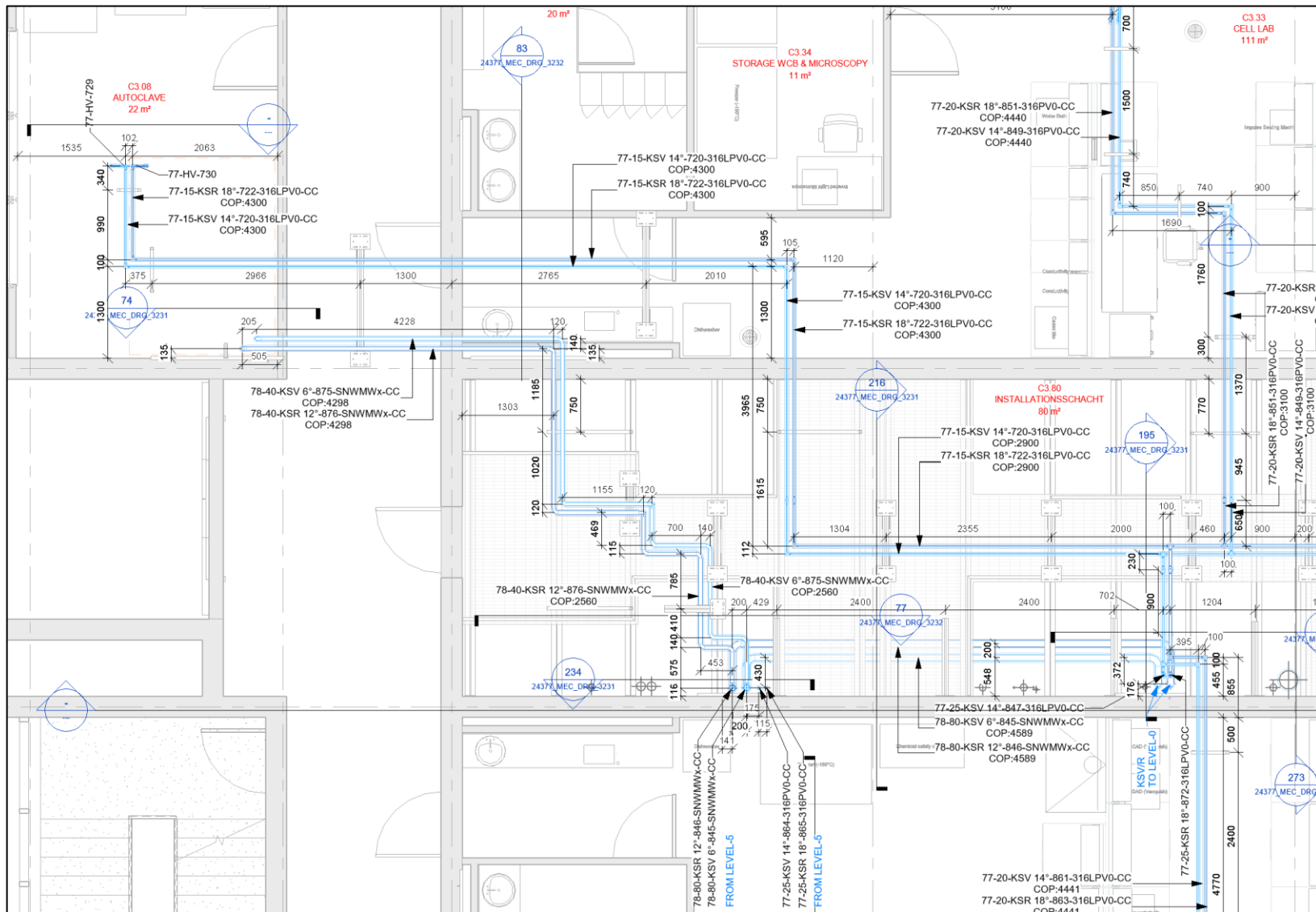
SILVER SPONSOR:



PATROCINIO:



Piping – Design and Execution Process



212 Section 212
1 : 25

GOLD SPONSOR:



SILVER SPONSOR:



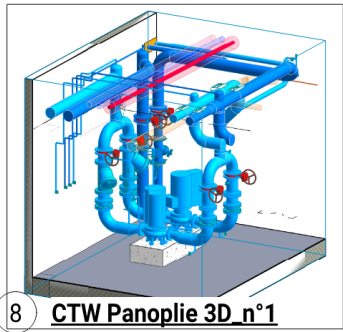
PATROCINIO:



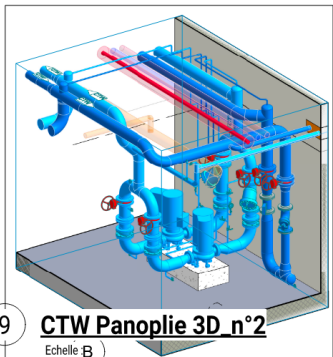
COMUNE DI CERVIA

Piping – Design and Execution Process

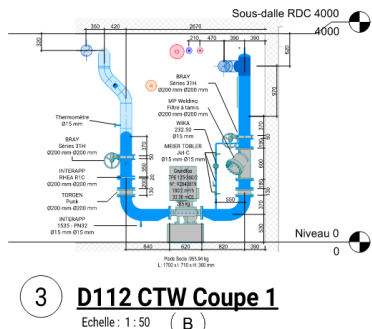
CTW



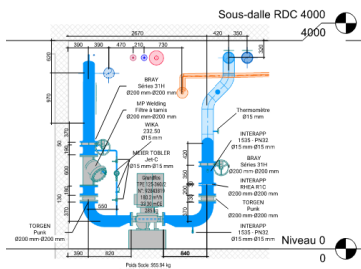
8 **CTW Panoplie 3D n°1**
Echelle :



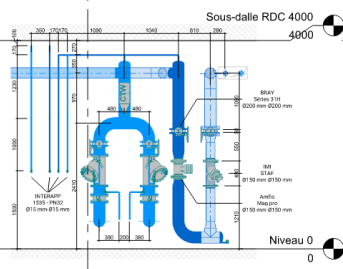
9 **CTW Panoplie 3D n°2**
Echelle B



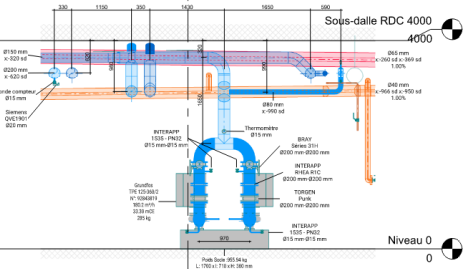
3 **D112 CTW Coupe 1**
Echelle : 1 : 50



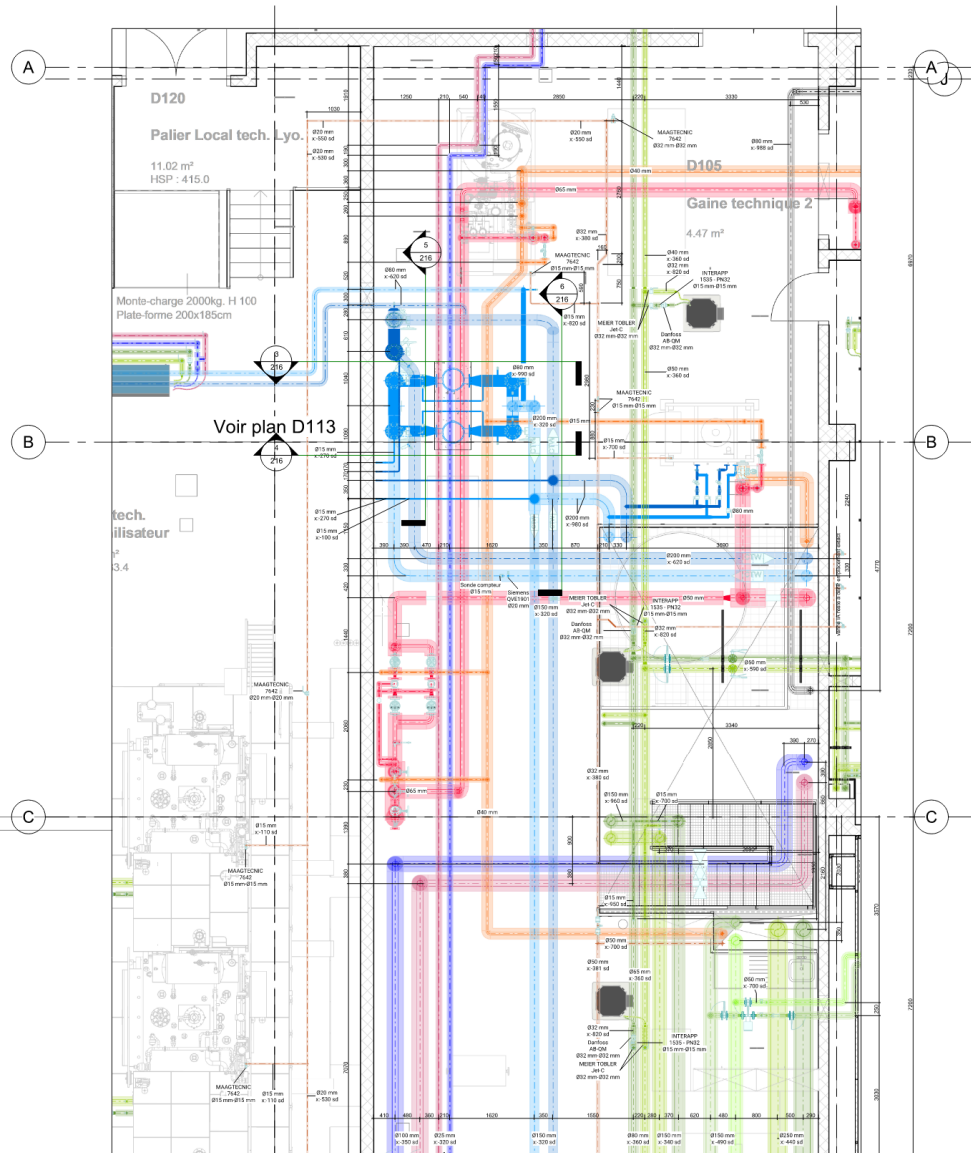
4 **D112 CTW Coupe 2**
Echelle : 1 : 50



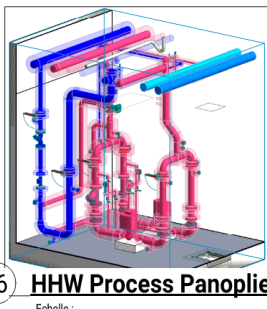
5 **D112 CTW Coupe 3**
Echelle : 1 : 50



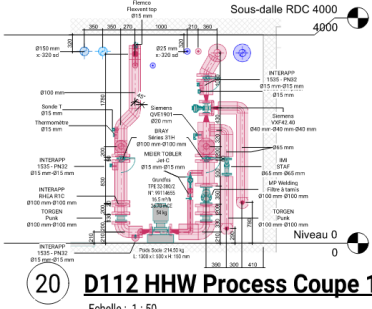
6 **D112 CTW Coupe 4**
Echelle : 1 : 50



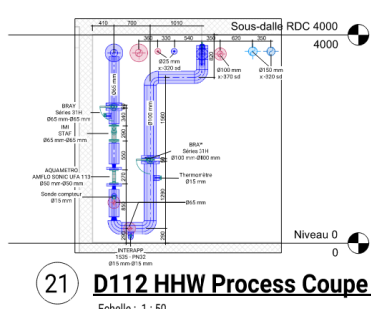
HHW



26 **HHW Process Panoplie 3D**
Echelle :



20 **D112 HHW Process Coupe 1**
Echelle : 1 : 50



21 **D112 HHW Process Coupe 2**
Echelle : 1 : 50

GOLD SPONSOR:



SILVER SPONSOR:

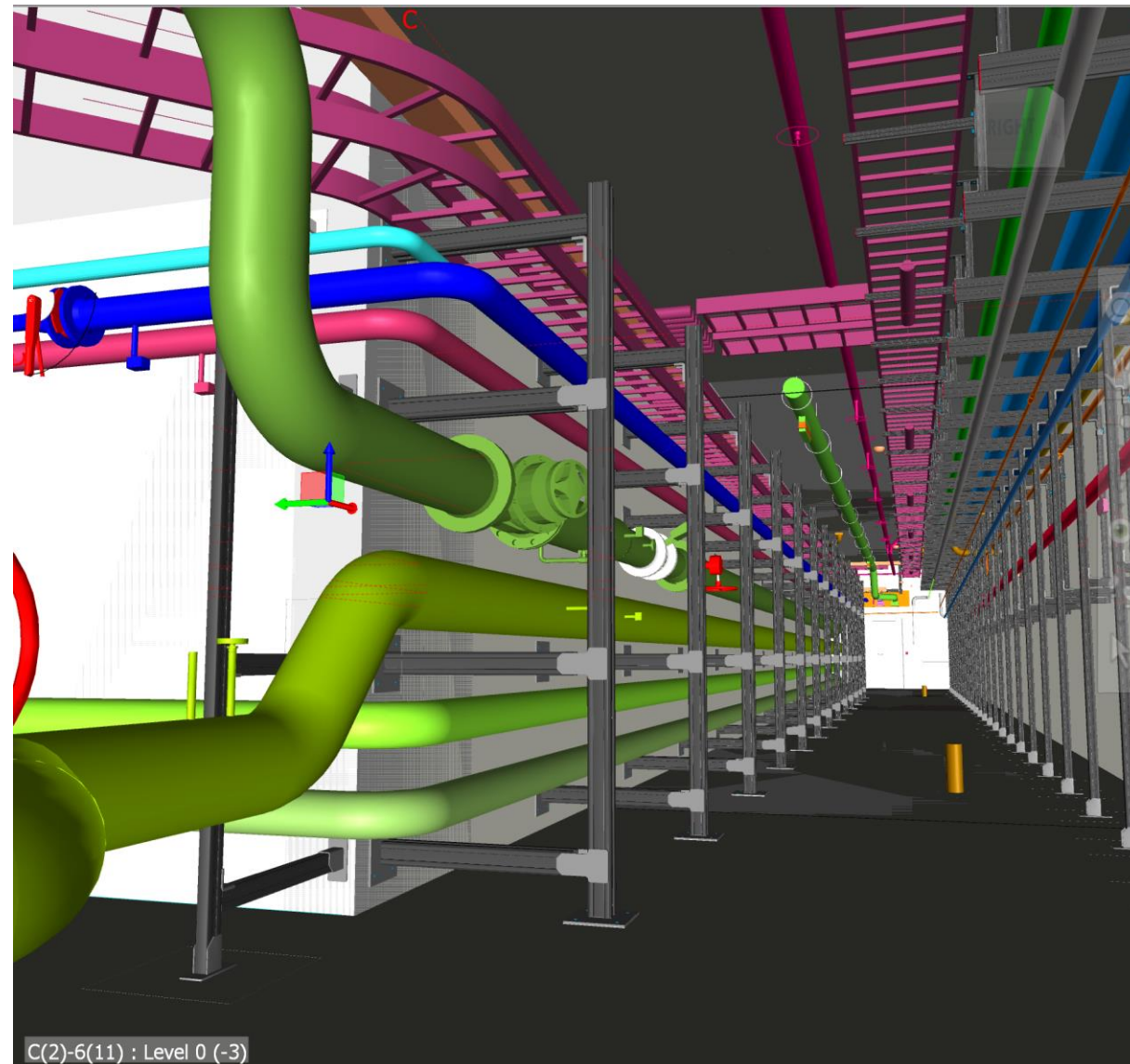


PATROCINIO:



COMUNE DI CERVIA

Impianti - Coordinamento e staffaggi comuni



GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Provision for Voids Manager

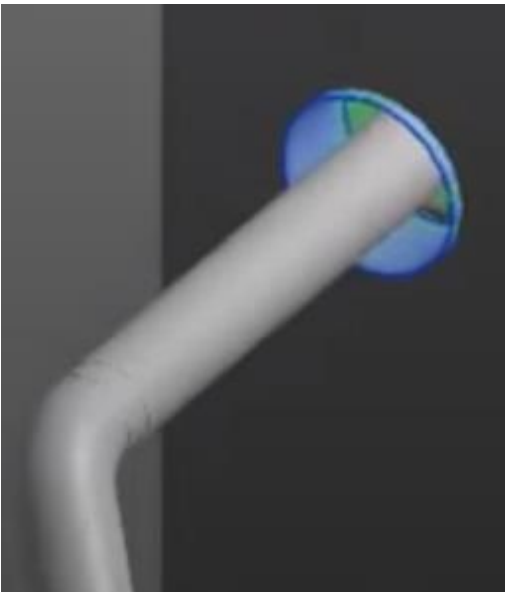
Owner	Level	Status	Comments	Size	Host	Coordinates	Error or Warning
Vent	Level 1			250	Wall	(8036; 3649; 12000)	
Vent	Level 1			250	Wall	(5612; 3649; 12000)	
Vent	Level 1	Accepted	OK	250	Wall	(11249; 5399; 127)	
Vent	Level 1	Rejected	Too large	250	Wall	(961; 3649; 12000)	
Vent	Level 1			250	Wall	(-1601; -3649; 12000)	
Vent	Level 1			200	Wall	(-1839; -10039; 130)	
Vent	Level 1			200	Wall	(4239; -10039; 130)	
Vent	Level 1			200	Wall	(6439; -10039; 130)	
Vent	Level 1			200	Wall	(9039; -10039; 130)	
Vent	Level 1			200	Wall	(11439; -10039; 130)	
Vent	Level 1			200	Wall	(-39; -10039; 12579)	
Vent	Level 1			200	Wall	(2361; -10039; 125)	
Vent	Level 1			200	Wall	(4761; -10039; 125)	
Vent	Level 1			200	Wall	(7161; -10039; 125)	
Vent	Level 1			200	Wall	(9561; -10039; 125)	
Vent	Level 1			200	Wall	(11961; -10039; 125)	
Vent	Level 1			200	Ceiling	(11739; -7964; 124)	
Vent	Level 1			300	Floor	(10405; -5801; 52000)	
Vent	Level 1			200	Wall	(10661; -7964; 101)	
Vent	Level 1			200	Wall	(10405; -5449; 127)	
Vent	Level 1			500x500	Wall	(8777; -5449; 12900)	
Vent	Level 1			200	Wall	(11249; -5399; 127)	

Show

Create void

OK

Cancel



Create

Export / Import

Floor Plan: 1 - Ventilation - UK Demo MCREV 2015_04 - Updated.rvt

1

2

3

4

5

6

Provision for Voids Options

Offset

Below/around rectangular objects (h1):

50

mm

Around circular objects (h2):

50

mm

Above rectangular objects (h3):

50

mm

Min. distance between voids (h4):

100

mm

Extra offset around fire dampers / products:

50

mm

Limits

Min. diameter for circular voids:

50

mm

Max. diameter for circular voids:

300

mm

Rounding step:

50

mm

Rounding down limit:

20

mm

Owner

Ventilation:

Vent

Piping:

Htg/Cig

Plumbing:

DWS

Sprinkler:

Sprink

Electrical:

Elec

OK

Cancel

h1

h2

h3

h4

Conditions for when multiple individual holes become a single slot opening can be set

Merge...

Close

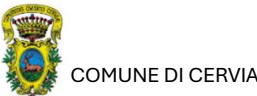
GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



LOG: Level of Graphic

- **All necessary heating, ventilating, air-conditioning and specialty HVAC equipment** are to be modelled to include air distribution ducts for supply, return, ventilation ducts, exhaust ducts, control systems, registers, diffusers, grills, and hydronic based boards.
- Elements requiring **access for operations and maintenance** are to contain a separate solid to depict the overall clearance required.
- All ducts and **air handling equipment** are to be modelled. Ducts to be modelled depicting the duct/flanges and insulation as separate components.
- **Hangers, supports** and miscellaneous steel shall be modelled.
- **Mechanical equipment** to be modelled to its overall height, width and depth and include points of connections to other systems. **Access zones** and code clearances where applicable are to be modelled as a separate solid.
- **All piping requiring gravity slope**, such as condensate piping, and all other piping associated with the mechanical equipment will be modelled and should include fittings and connections.
- **All valves** and clean-outs are to be modelled and are to be specially identified.
- **Return openings** required in drywall partitions shall be indicated.

LOI: Level of Information (model intelligence)

Parameters to be assigned to 3D element

- Object type (pipe/fitting/component etc)
- Device code/supplier
- System Name
- Pipe/fitting/component Size
- Spec code
- Insulation Type
- Insulation Thickness
- AHU
- Flow data (volume, speed, p.drop etc)
- Component Tag (aligned to P&ID)

Example

Element ID	Element	System Type	Phase Created	Reference Level	Revit Type	TimeLiner
Property	Value					
Name	DIN 18379					
Type	DIN 18379					
Family	Rectangular Duct					
Category	Ducts					
Id	3962607					
System Classification	Supply Air					
System Type	MechanicalSystemType "AHU3 ZUL", #2428791					
System Name	Mechanical AHU3 ZUL 5					
Free Size	1400 mm/500 mm					
Overall Size	1400 mm/500 mm					
Lining Thickness	0 mm					
Insulation Thickness	0 mm					
Size	1400/500					
MC Bottom Elevation	3.491 m					
MC Bottom Elevation abs	12.491 m					
MC Bottom Elevation With insulation	3.491 m					
MC Bottom Elevation With insulation abs	12.491 m					
MC eKlimax Exported	No					
MC Installation Elevation	3.741 m					
MC Installation Elevation abs	12.741 m					
MC Is Linked In Schematic	No					
MC Size Lock - Height	No					
MC Size Lock - Width	No					
MC Sound Level by Octave Band	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 dB					
MC Surface Area	25.816 m²					
MC Top Elevation	3.991 m					
MC Top Elevation abs	12.991 m					
MC Top Elevation With insulation	3.991 m					
MC Top Elevation With insulation abs	12.991 m					
MC Ventilation dp/m	0.3 Pa					
MC Ventilation Flow	12530 m³/h					
MC Ventilation Pressure Drop	0.0 Pa					
MC Ventilation Static Pressure	0.0 Pa					
MC Ventilation Total Pressure	214.1 Pa					
MC Ventilation Velocity	5.0 m/s					
MC Adjusted Length	0.000 m					
MC Index Route	Yes					
MC Ventilation Diversified Flow	12530 m³/h					
MC Ventilation Diversity Factor	0.000					
Workset	Liftung L2					

LOIN = Level of Information needed (former LOD)

GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:

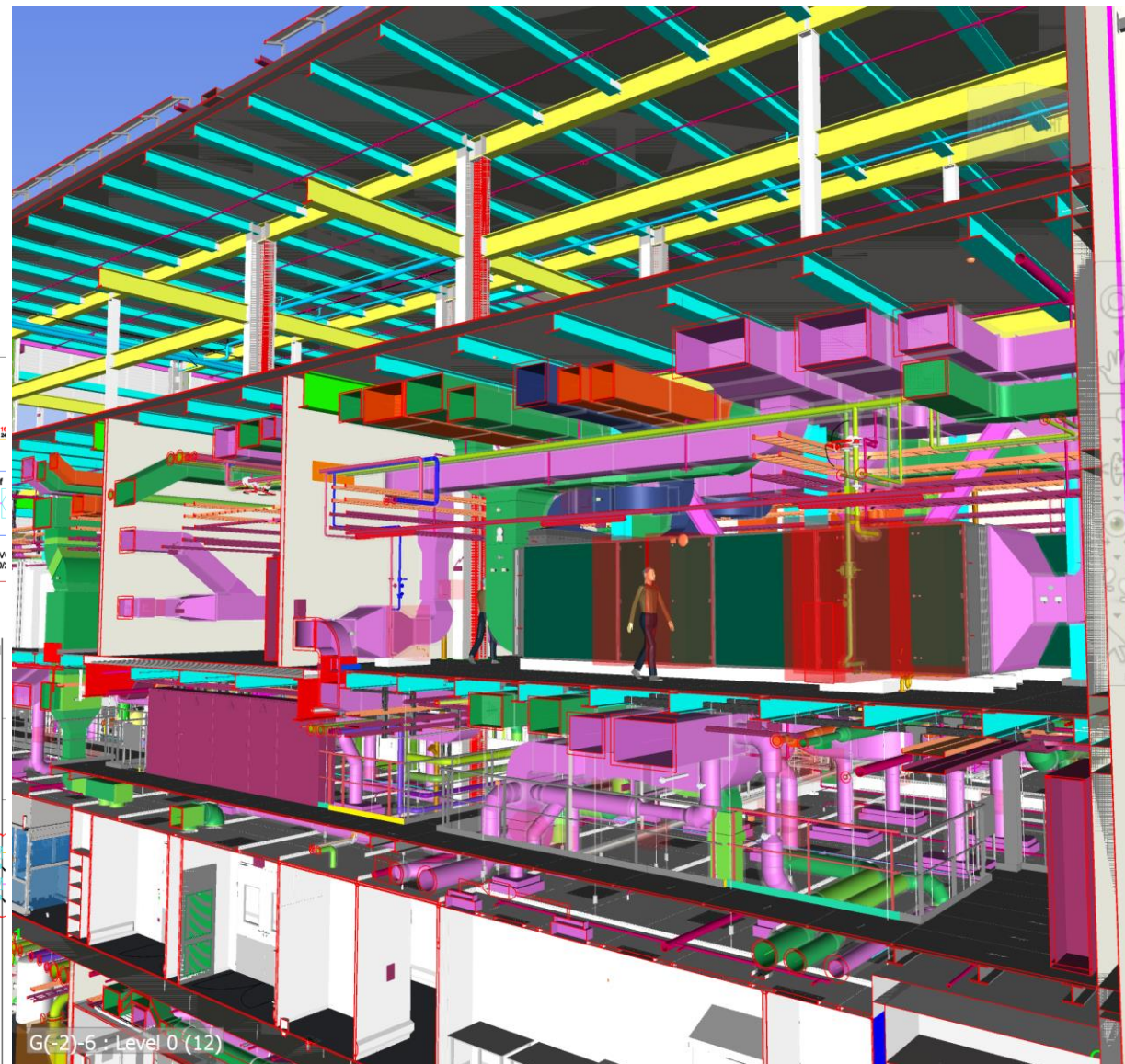


Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

**MAPEI**

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.



DRACO
QUALITÀ PER L'EDILIZIA



3elleN

GEOMAX
Parte del gruppo Hexagon



COMUNE DI CERVIA

Impianti – Calcolo integrato BIM per ventilazione

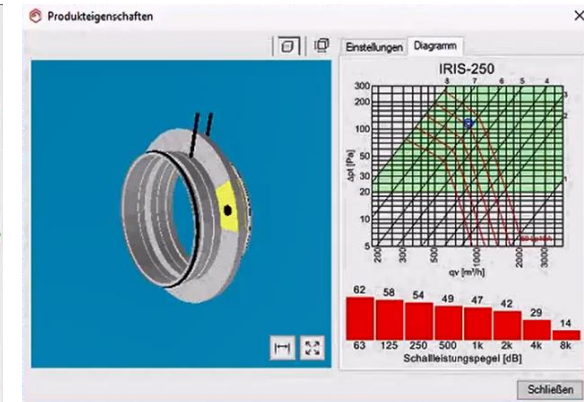
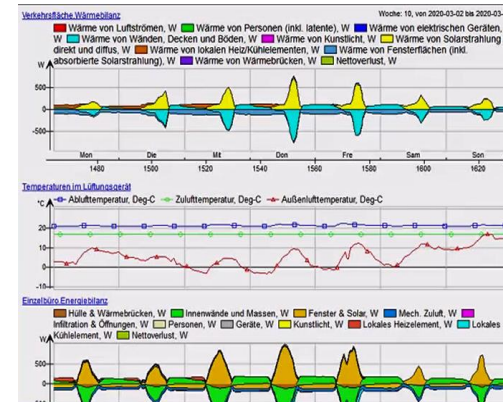
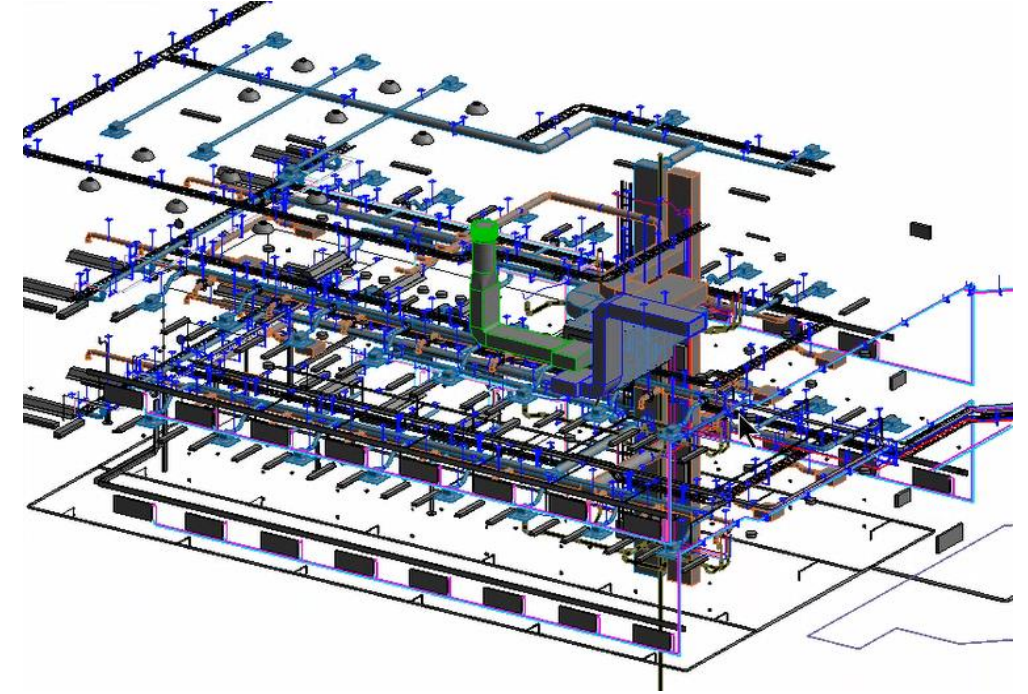
MagiCAD - Bericht für Luftkanalnetzrechnung

Export

☒ ZuLuft ☐ Außenluft ☐ Allgemeine Ergebnisse

☐ Abluft ☐ Fortluft

Position	Geschoss	Knoten	Typ	Seite	Produkt	Größe	L [m]	Isolierung	Qv festgelegt [m³/h]	qv [m³/h]	v [m/s]	dp [Pa]	K Faktor	dp/L [Pa/m]	pt [Pa]
1 Floor			Segment	WFR	MAGID-C1-400	400	10.0		2100.0	2100.0	4.6	6.2		0.62	99.6
1 Floor			BOGEN-90	WFR	MAGIB-C1-90-400	400			2100.0	2100.0	4.6	10.0	0.773	0.62	93.3
1 Floor			Segment	WFR	MAGID-C1-400	400	1.1		2100.0	2100.0	4.6	0.7		0.62	83.3
1 Floor			BOGEN-45	WFR	MAGIB-C1-45-400	400			2100.0	2100.0	4.6	5.0	0.386	0.62	82.7
1 Floor			Segment	WFR	MAGID-C1-400	400	2.4		2100.0	2100.0	4.6	1.5		0.62	77.7
1 Floor		1	T-STÜCK	WFR	MAGIT-CC1-400-3	400/315			2100.0	2100.0	4.6	14.6	1.130	0.56	76.2
1 Floor			Segment	WFR	MAGID-C1-315	315	0.7		1050.0	1050.0	3.7	0.4		0.56	61.6
1 Floor		2	T-STÜCK	WFR	MAGIT-CC1-315-1	315/160			1050.0	1050.0	3.7	8.9	1.061		61.2
1 Floor			Segment	WFR	MAGID-C1-160	160	0.1		150.0	150.0	2.1	0.0		0.44	52.3
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	52.2
1 Floor			Segment	WFR	MAGID-C1-160	160	0.0		150.0	150.0	2.1	0.0		0.44	51.4
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	51.3
1 Floor			Segment	WFR	MAGID-C1-160	160	1.5		150.0	150.0	2.1	0.7		0.44	50.5
1 Floor		3	ZULUFT		DYSH-200+ATTS-160	160			150.0	150.0	2.1	49.8			49.8
1 Floor			Segment	WFR	MAGID-C1-315	315	2.5		900.0	900.0	3.2	1.0		0.42	60.8
1 Floor		4	T-STÜCK	WFR	MAGIT-CC1-315-1	315/160			900.0	900.0	3.2	6.7	1.083		59.8
1 Floor			Segment	WFR	MAGID-C1-160	160	0.1		150.0	150.0	2.1	0.0		0.44	53.1
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	53.0
1 Floor			Segment	WFR	MAGID-C1-160	160	0.0		150.0	150.0	2.1	0.0		0.44	52.2
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	52.2
1 Floor			Segment	WFR	MAGID-C1-160	160	1.5		150.0	150.0	2.1	0.7		0.44	51.3
1 Floor		5	ZULUFT		DYSH-200+ATTS-160	160			150.0	150.0	2.1	50.6			50.6
1 Floor			REDUZIERUNG	WFR	MAGIR-CC1-315-2	315/250			750.0	750.0	2.7				59.1
1 Floor			Segment	WFR	MAGID-C1-250	250	2.5		750.0	750.0	4.2	2.3		0.94	59.1
1 Floor		6	T-STÜCK	WFR	MAGIT-CC1-250-1	250/160			750.0	750.0	4.2	11.3	1.048		56.8
1 Floor			Segment	WFR	MAGID-C1-160	160	0.1		150.0	150.0	2.1	0.0		0.44	45.5
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	45.5
1 Floor			Segment	WFR	MAGID-C1-160	160	0.0		150.0	150.0	2.1	0.0		0.44	44.6
1 Floor			BOGEN-30	WFR	MAGIB-C1-30-160	160			150.0	150.0	2.1	0.9	0.337	0.44	44.6
1 Floor			Segment	WFR	MAGID-C1-160	160	1.5		150.0	150.0	2.1	0.7		0.44	43.7
1 Floor		7	ZULUFT		DYSH-200+ATTS-160	160			150.0	150.0	2.1	43.0			43.0



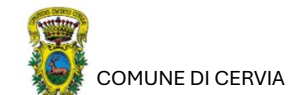
GOLD SPONSOR:

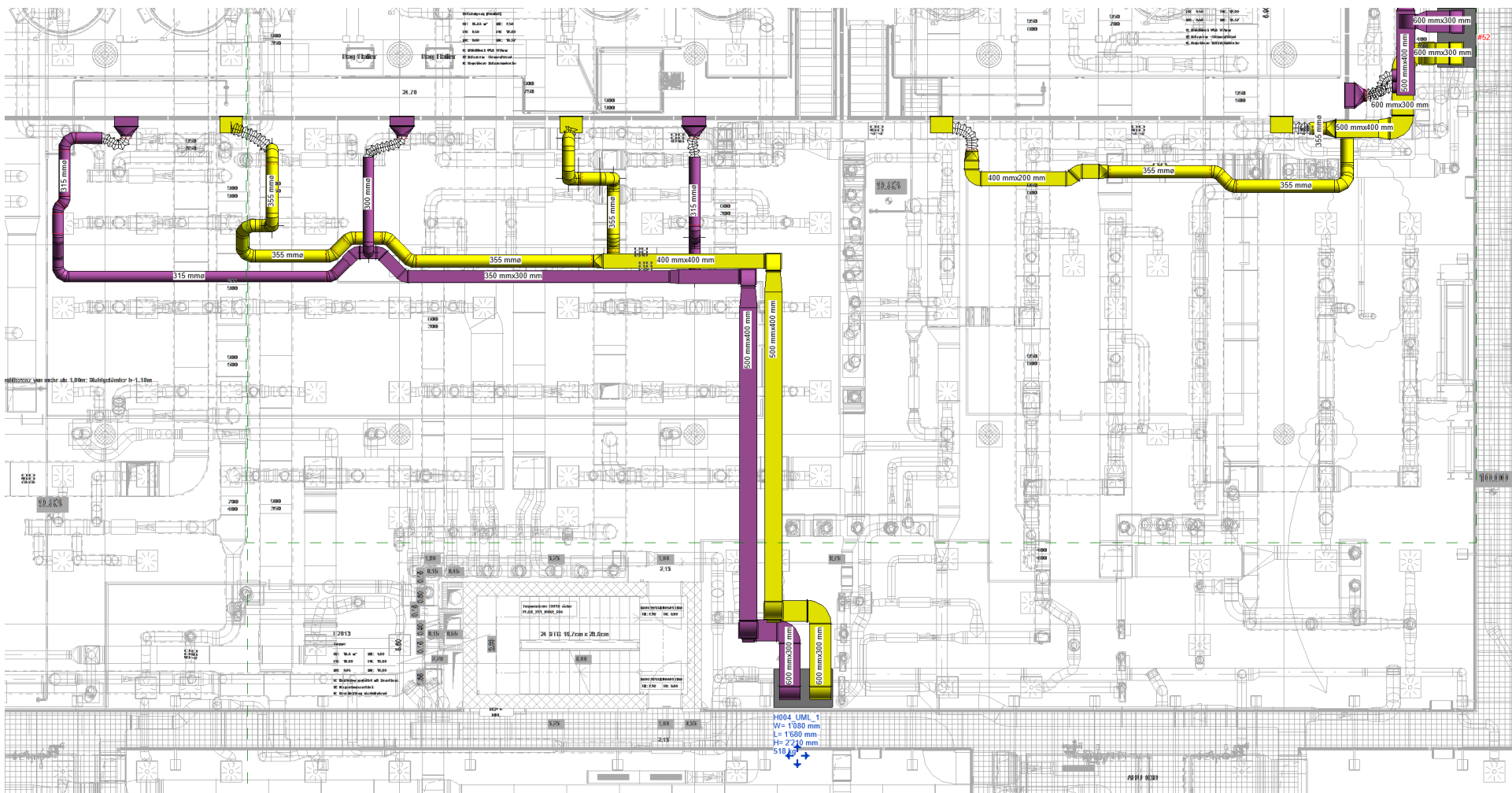


SILVER SPONSOR:



PATROCINIO:





GOLD SPONSOR:



SILVER SPONSOR:



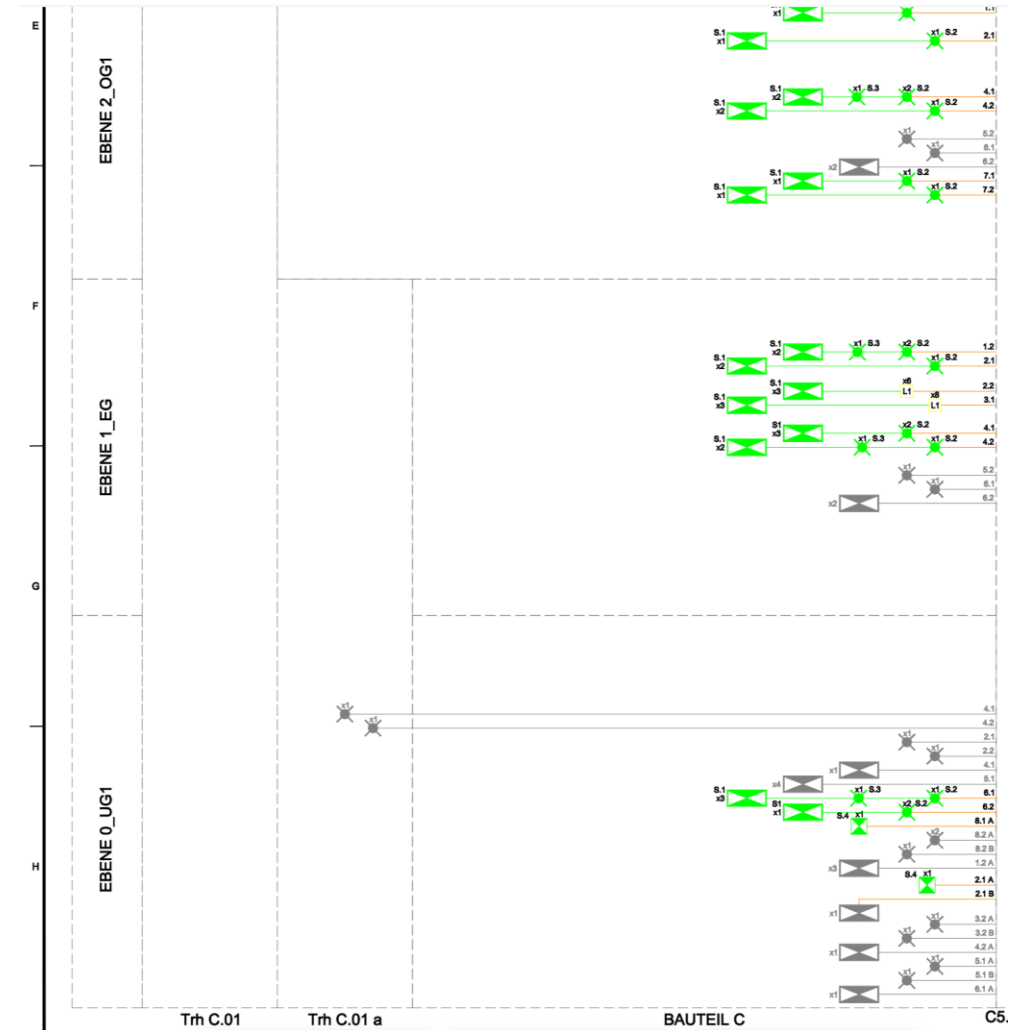
PATROCINIO:



COMUNE DI CERVIA

Impianti – E&I Requirements

- **Lighting fixtures** modelled to overall height, width, depth. Access and installation area required to be modelled as a solid within interstitial spaces. (Light fixture locations are to be coordinated with the architectural reflected ceiling plans).
- **Cable tray** modelled to overall height, width and depth.
- **Hangers** shall be modelled separately or integrated to a common interdisciplinary support.
- **Electrical associated with equipment**, is to be modelled in order to coordinate connections. Outlets and switches are to be modelled if coordination is required with interior cabinets, equipment, and finishes.
- **Electrical panels** are to be located and contain a separate solid depicting the required code clearance.
- All models are to contain **clearance envelopes, insulation, and access**. All clearance envelopes, insulation, and access are to be identified on separate layers, grouping, identification, or file name.
- **All Electrical Equipment** should be modelled to its overall height, width, and depth. This includes switch gears, transformers, generators, panels, etc. All support mechanisms larger than 50mm are to be modelled. Power feeds to equipment will not be modelled.
- Electrician will be responsible for modelling all **electrical associated with HVAC** from the point the Mechanical Subcontractor stops (line side of disconnect).
- **Flexible systems smaller than 50mm are not required** to be modelled. Conduit is not to be modelled.



GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



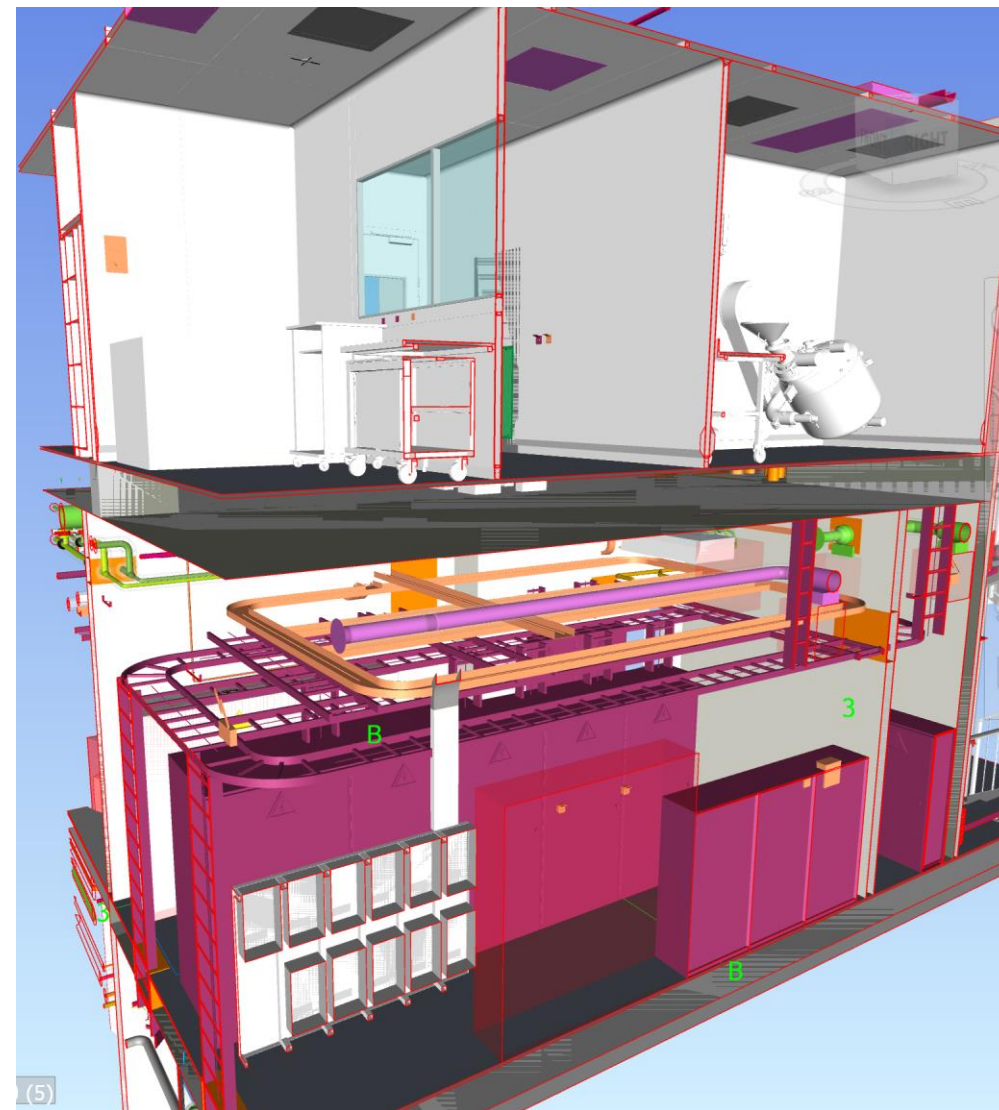
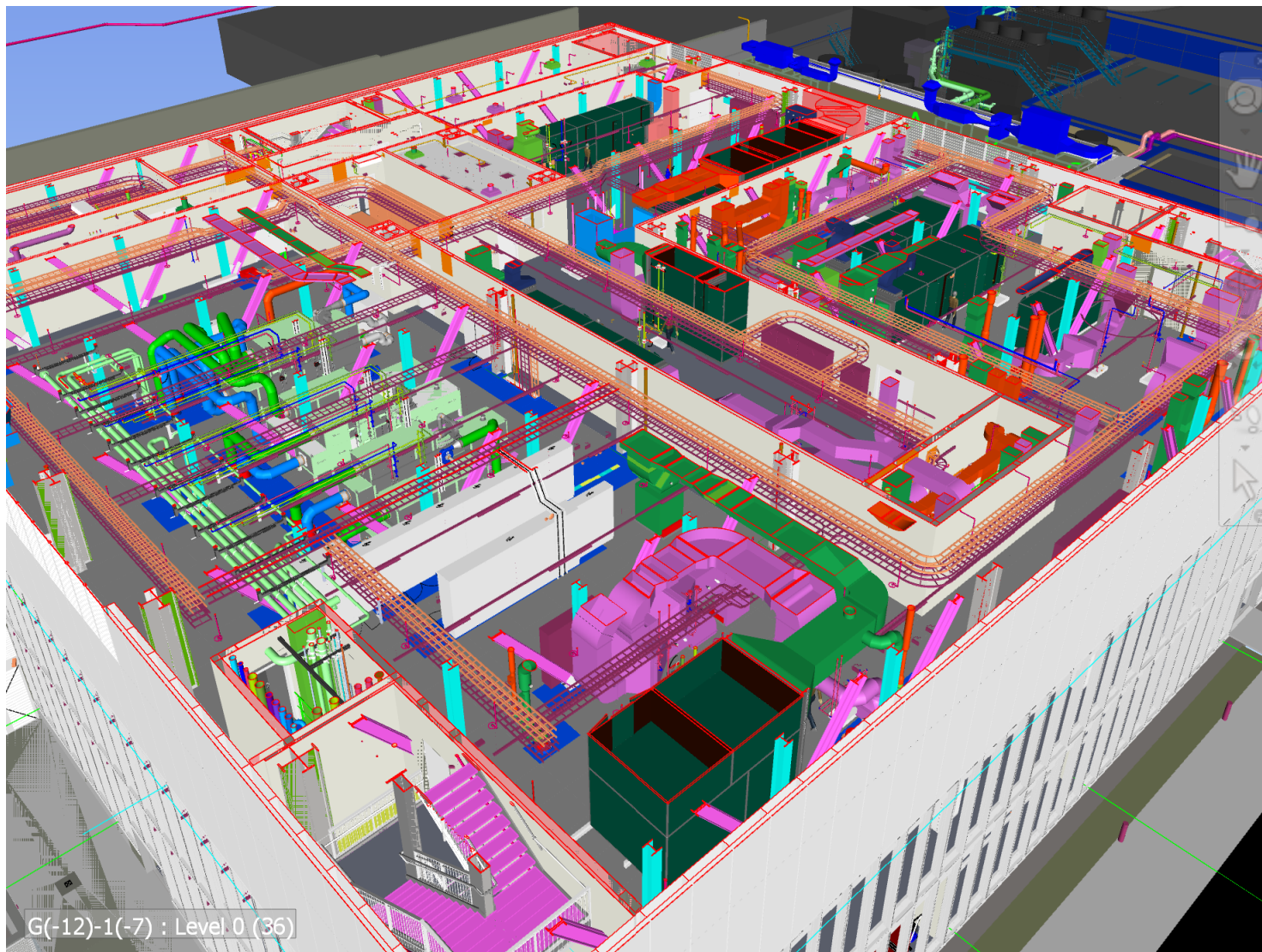
Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Impianti – 3D canaline elettriche



GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



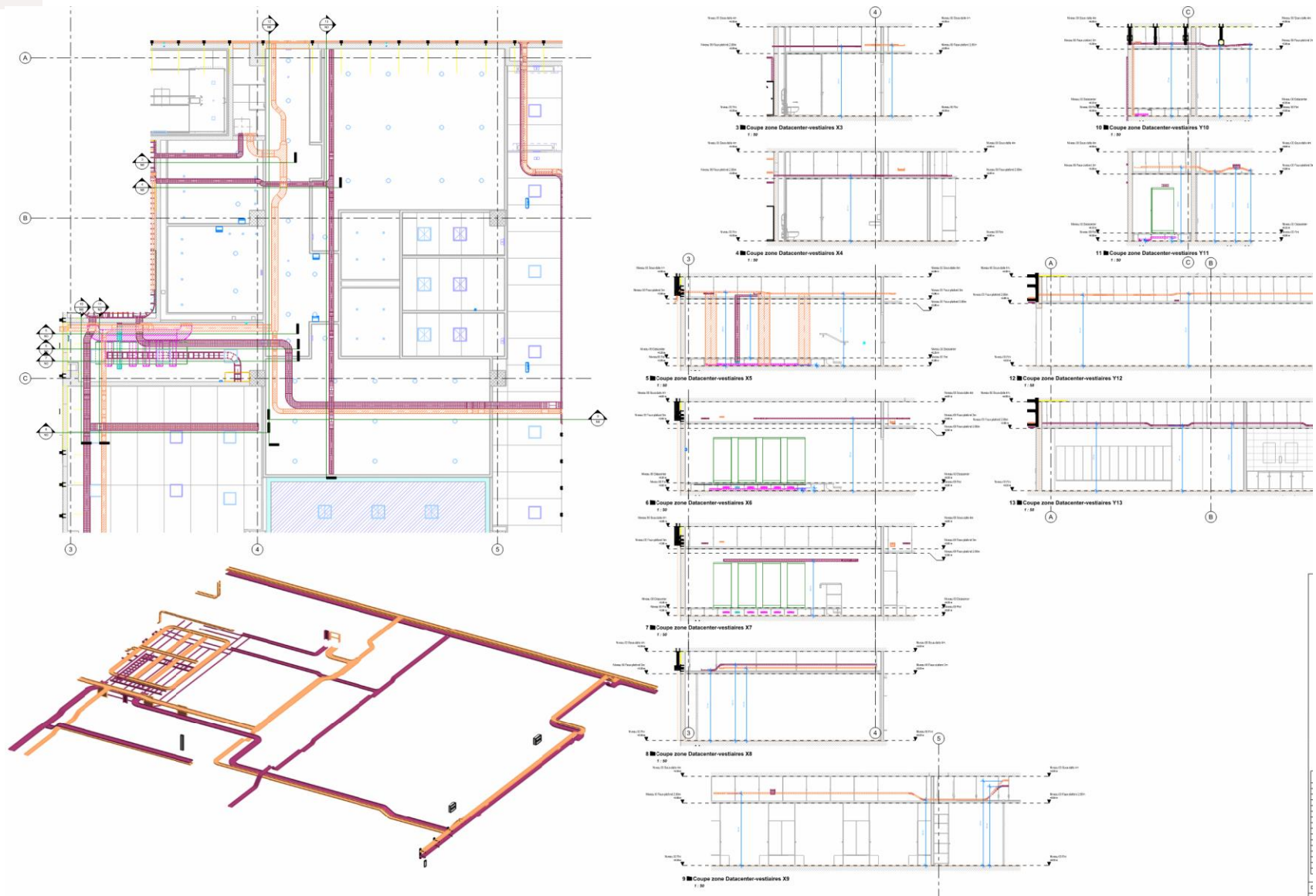
Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Impianti – Layout canaline elettriche



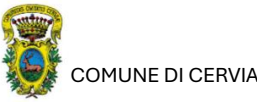
GOLD SPONSOR:



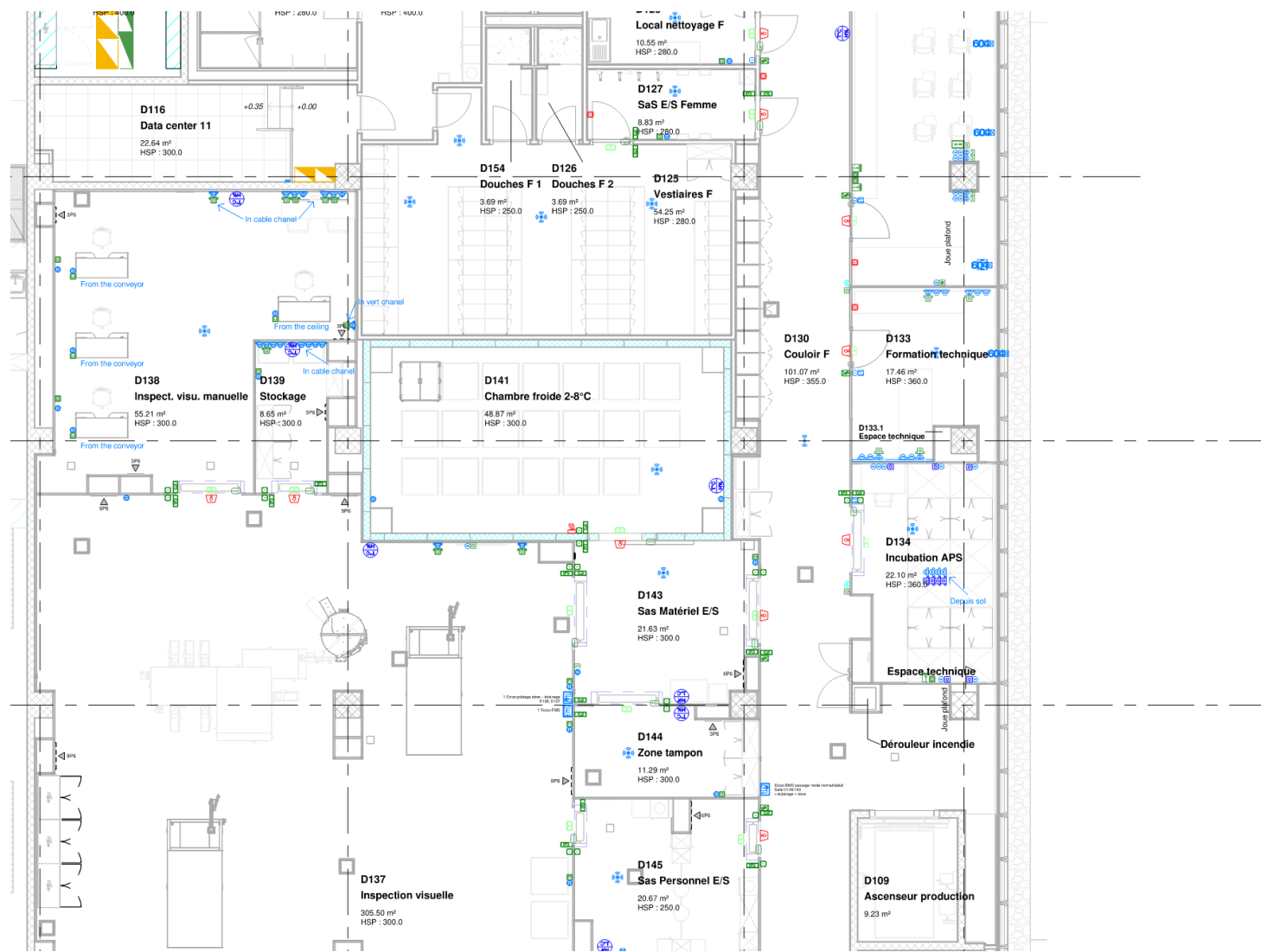
SILVER SPONSOR:



PATROCINIO:



Impianti – Layout dispositivi elettrici



LEGENDE

- Emergency lighting / Waterproof emergency lighting
Bloc Eclairage de Sécurité / étanche
- Clean room emergency lighting
Bloc Eclairage de sécurité des salles blanches
- Presence detector 280° - wall mounted
Détecteur de présence 280° - applique
- Presence detector 360° corridor - recessed /surface
Détecteur de présence 360° Couloir - encastré /saillie
- Presence detector 360° standard / DALI - recessed
Détecteur de présence 360° standard / DALI - encastré
- Single light switch/indicator light
Interrupteur simple allumage / a voyant
- Push button
Bouton poussoir
- Blind control
Commande store
- Waterproof single light switch/indicator light
Interrupteur simple allumage étanche / a voyant
- Waterproof Two-way switch with indicator light
Interrupteur Va et vient étanche à voyant
- Touchscreen lighting/blind control
écran tactil éclairage / commande store
- Screen EMS
écran EMS
- Waterproof single / triple socket outlet on electrical channel
Prise de courant étanche simple / Triple sur goulotte
- Waterproof socket outlet Single / Triple
Prise de courant étanche Simple / Triple
- Magnetic contact. Access control
Contact magnétique. Contrôle d'accès
- Magnetic contact ems alarm
Contact magnétique alarme ems
- Badge reader
Lecteur de badge
- Exit button
Bouton de sortie
- RJ 45 socket / waterproof
Prise RJ 45 / étanche
- RJ 45 socket for electrical panel
Prise RJ 45 tableau électrique
- DECT hotspots
Bornes DECT
- Existing DECT hotspots
Bornes DECT existant
- Waterproof + heated DECT hotspots
Bornes DECT étanche + chauffant
- Wi-Fi hotspots
Bornes Wi-Fi
- Waterproof Wi-Fi hotspots
Bornes Wi-Fi étanche
- Digital clock
Horloge numérique
- Fire alarm buzzer with flash
Diffuseur sonore d'alarme incendie avec flash
- Wall mounted action indicator
Indicateur d'action mural
- Emergency telephone
Téléphone d'urgence

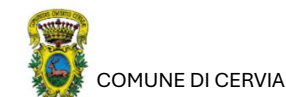
GOLD SPONSOR:



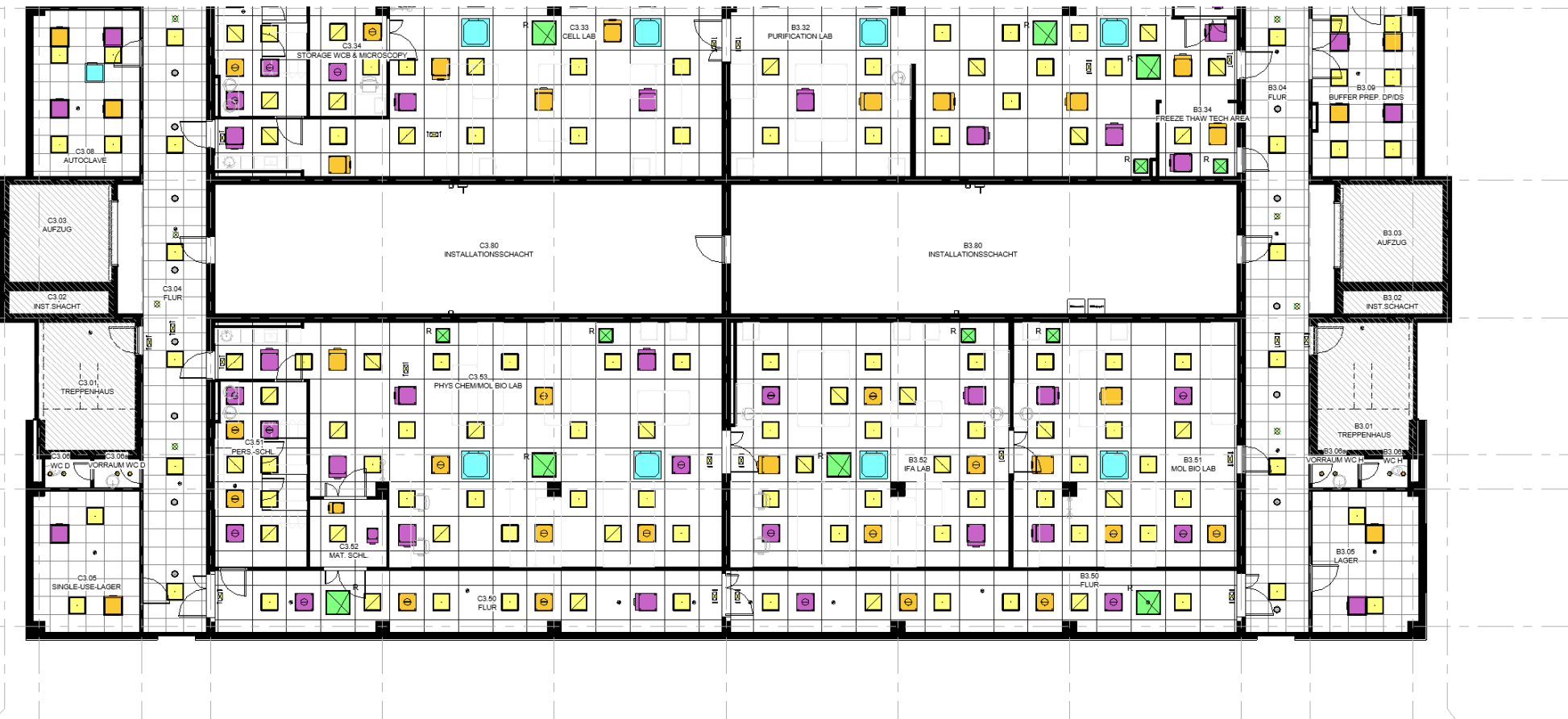
SILVER SPONSOR:



PATROCINIO:



Impianti – Coordinamento Controsoffitti



LEGEND - CLEANROOM

- 625x625 SUPPLY AIR (CLEANROOM VERSION)
- 625x625 RETURN AIR (CLEANROOM VERSION)
- LIGHT FITTING (REFER TO LIGHTING DRAWING FOR FITTING TYPE)
- CEILING ACCESS HATCH
- 1200x1200 WALKABLE CEILING - 3.00m (CEILING GRID 625x625 OUTSIDE THIS AREA. REFER TO ARCHITECTURE - NIEDERBURGER PLANS)
- RECIRCULATION UNIT CASSETTE-GEKO 822x822
- FIRE DETECTION DEVICE (REFER TO FIRE DETECTION DRAWING FOR TYPE)
- EMERGENCY EXIT SIGNAGE (REFER TO LIGHTING DRAWING FOR FITTING TYPE)
- EMERGENCY LIGHT FITTING (REFER TO LIGHTING DRAWING FOR FITTING TYPE)

LEGEND - SIDE ROOMS AND FLUR

- SUPPLY AIR FOR GRID 625x625. TYPE SCHAKO DRQ-SR-625
- RETURN AIR FOR GRID 625x625. TYPE SCHAKO DRQ-SR-625
- RETURN AIR FOR WC - TELLER VENTIL TROX LVS
- EXISTING AIR TERMINAL TO REMAIN
- LIGHT FITTING (REFER TO LIGHTING DRAWING FOR FITTING TYPE)
- LIGHT FITTING (REFER TO LIGHTING DRAWING FOR FITTING TYPE)
- RECIRCULATION UNIT TYPE - CASSETTE-GEKO 575x575x320

ips DOCUMENT APPROVAL
Originator:

GOLD SPONSOR:

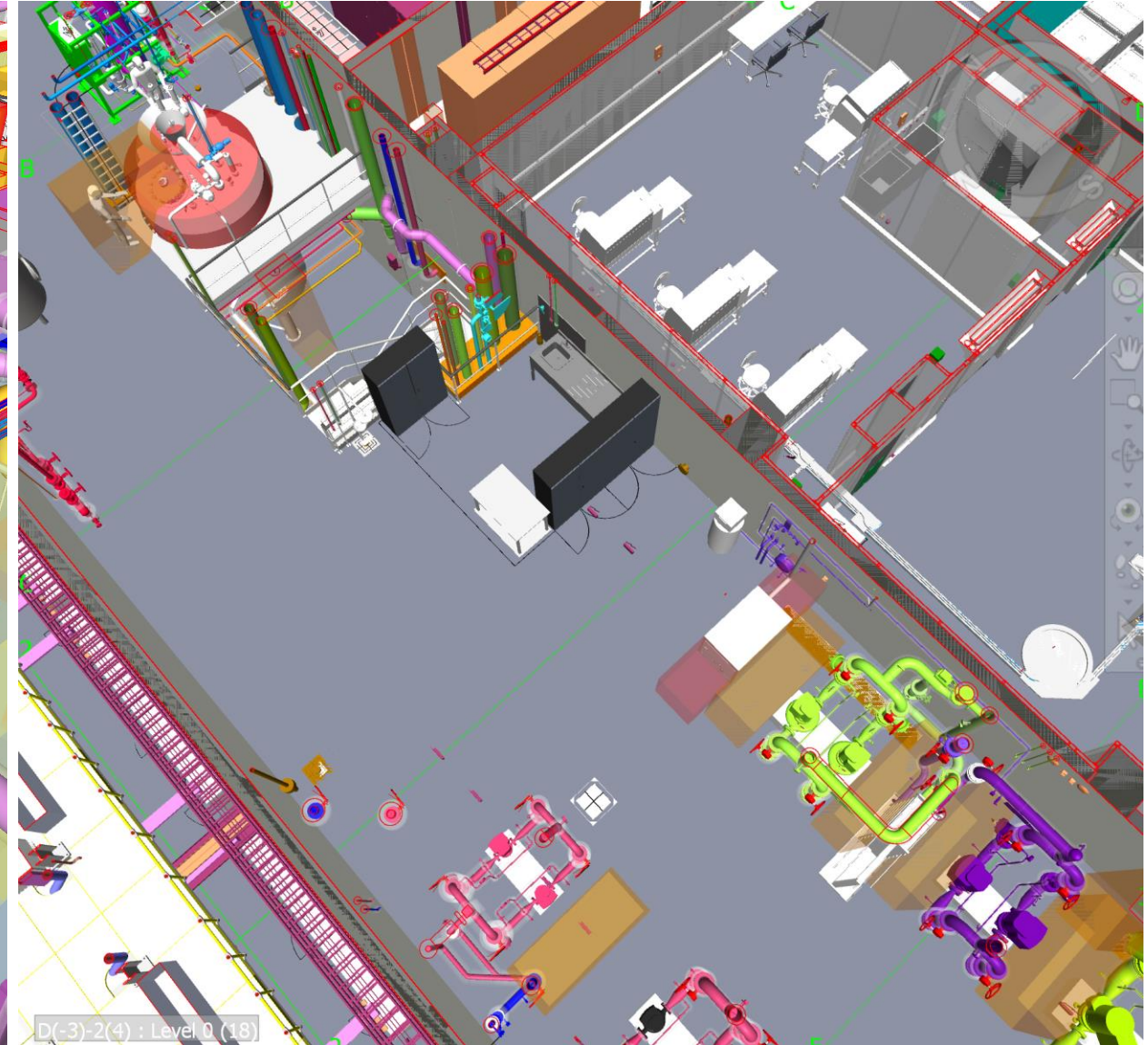
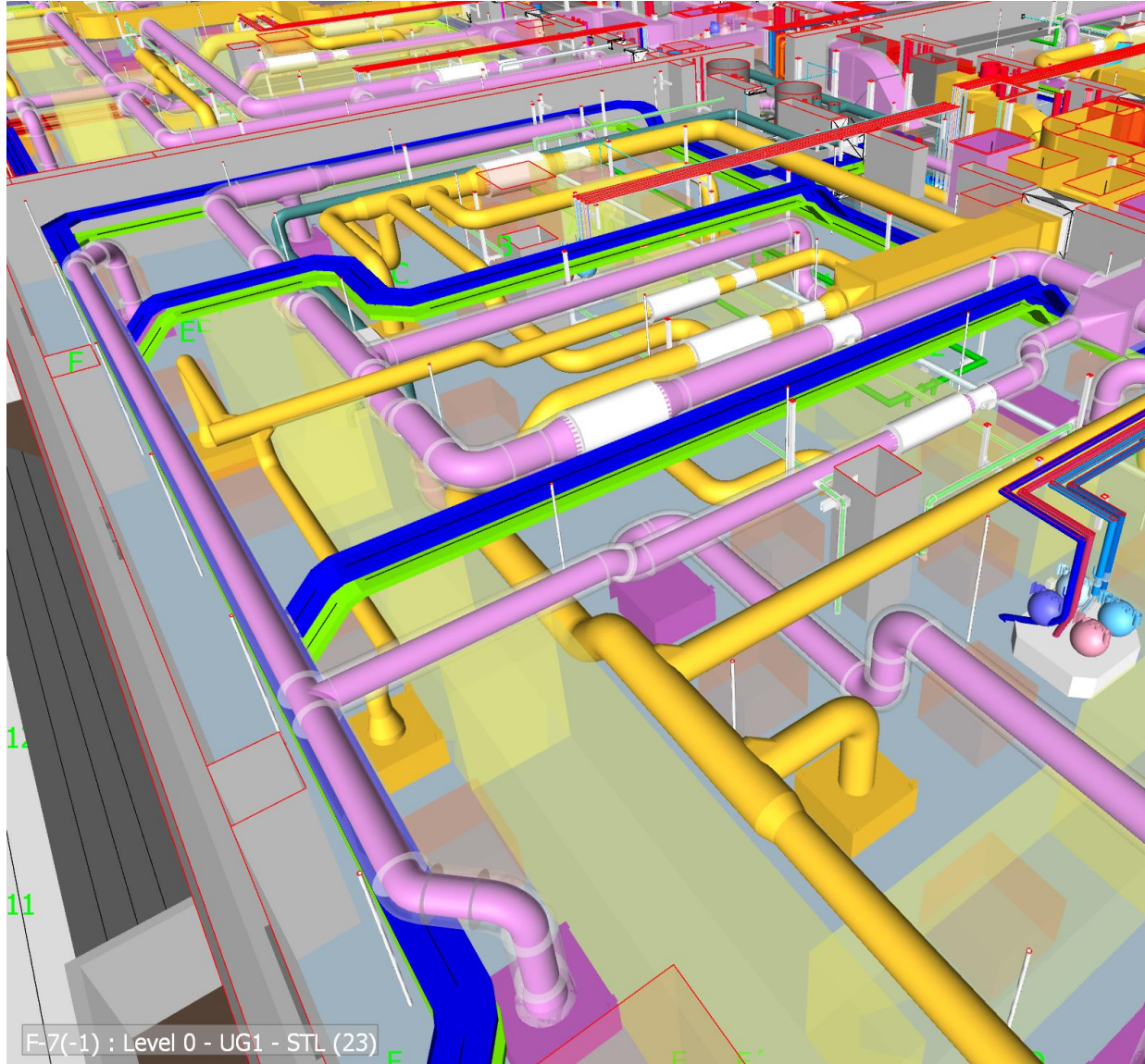


SILVER SPONSOR:



PATROCINIO:





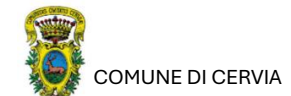
GOLD SPONSOR:



SILVER SPONSOR:

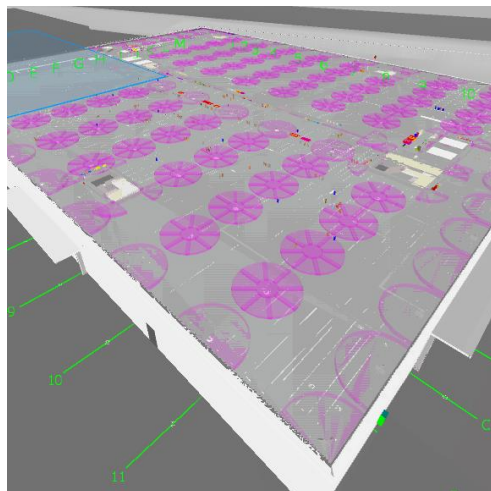


PATROCINIO:

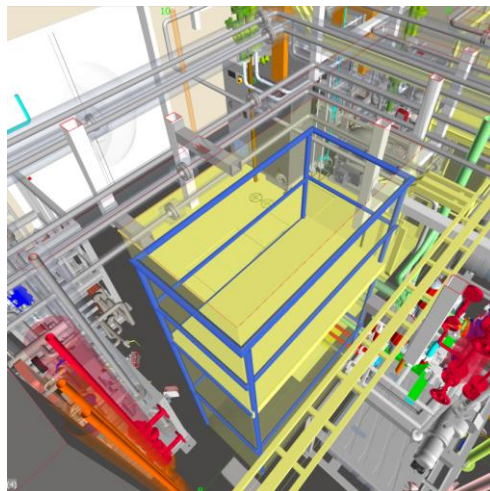


Space Management - Manutenzione ed Accessibilità

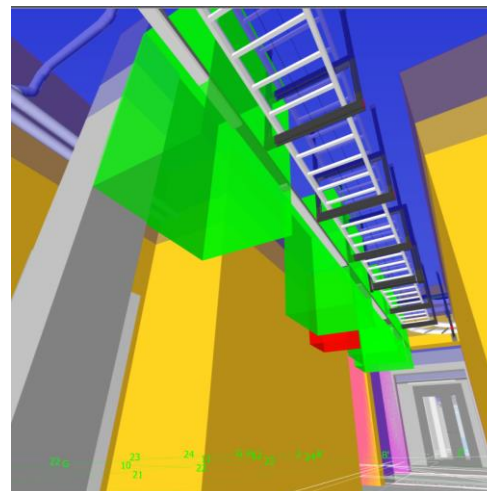
Structural taboo zones for penetrations



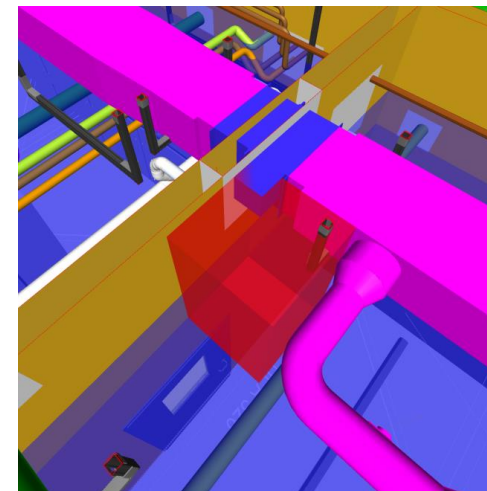
Scaffold simulation and reservation



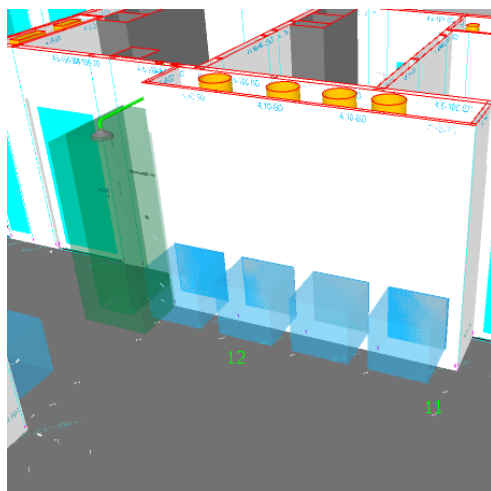
Risers reservation for electricians



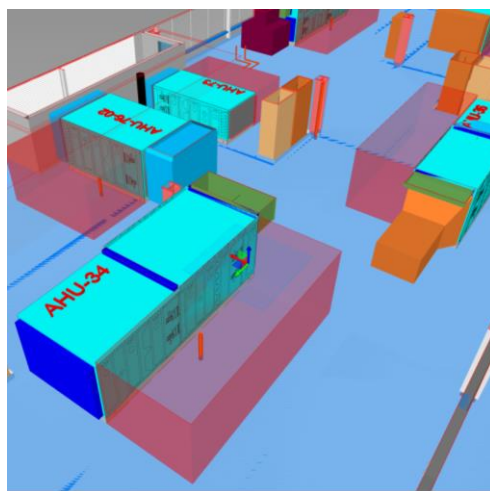
Fire dampers accessibility



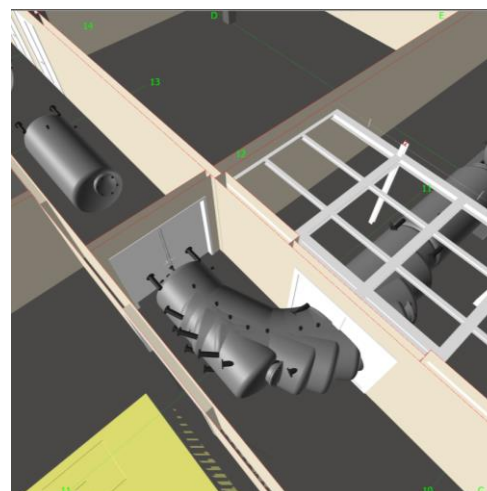
Access for filters exchange



AHU Maintenance volumes



Move-in Simulations



Ventilation filter maint. reservations



GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



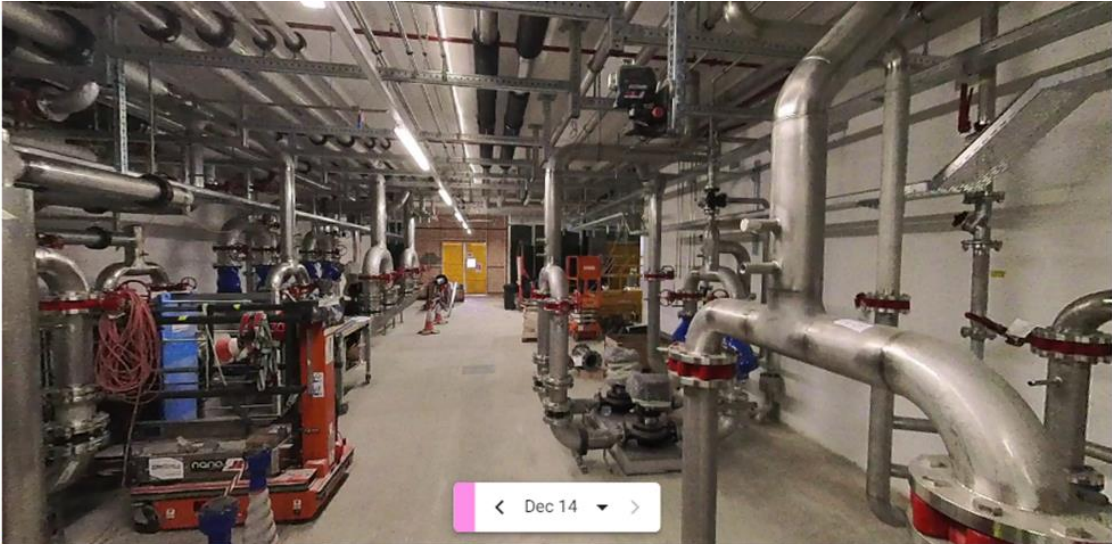
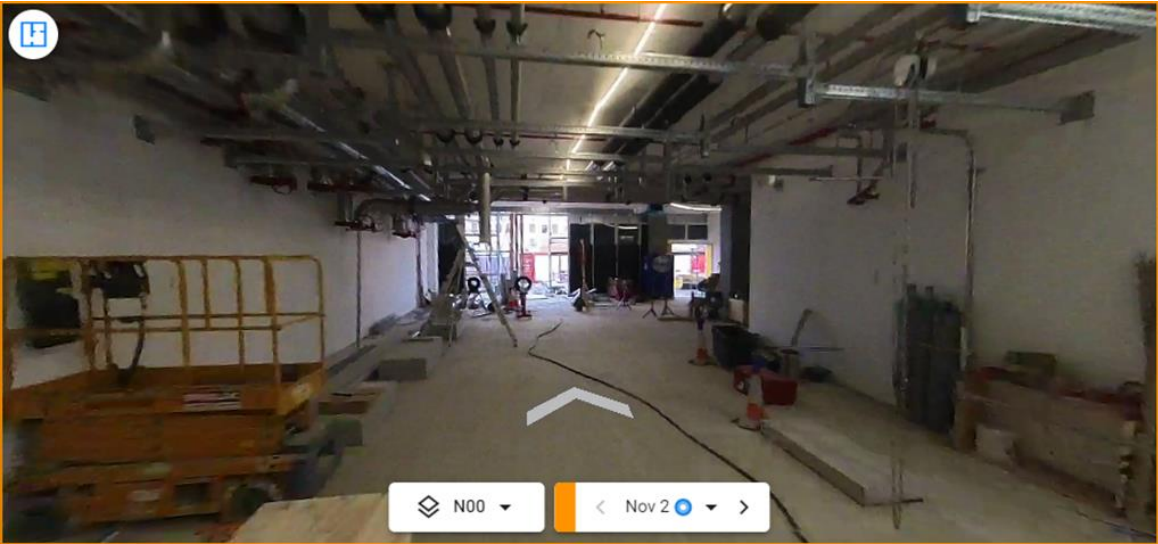
Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Cantiere – Monitoraggio con Cupix



Integrated Project Services, 21267-Takeda-NFA, Rte de Pierre-à-Bot 111, 2000 Neuchâtel, Switzerland

CupixWorks ver. 5.7.18

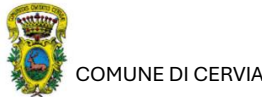
GOLD SPONSOR:



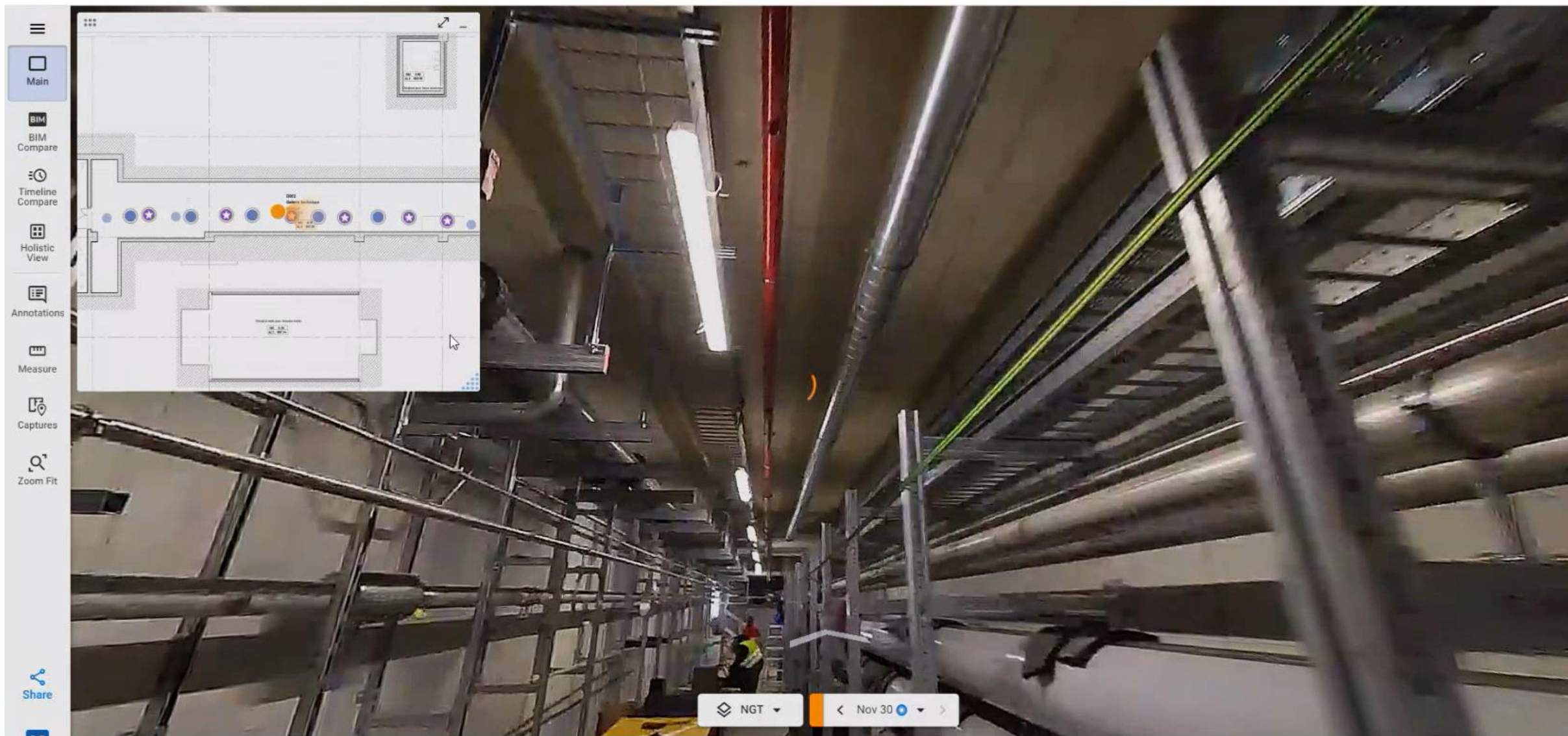
SILVER SPONSOR:



PATROCINIO:



Cantiere – Monitoraggio con Cupix



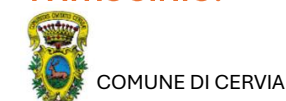
GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



Cantiere – Comparazione con Cintoo



GOLD SPONSOR:



SILVER SPONSOR:



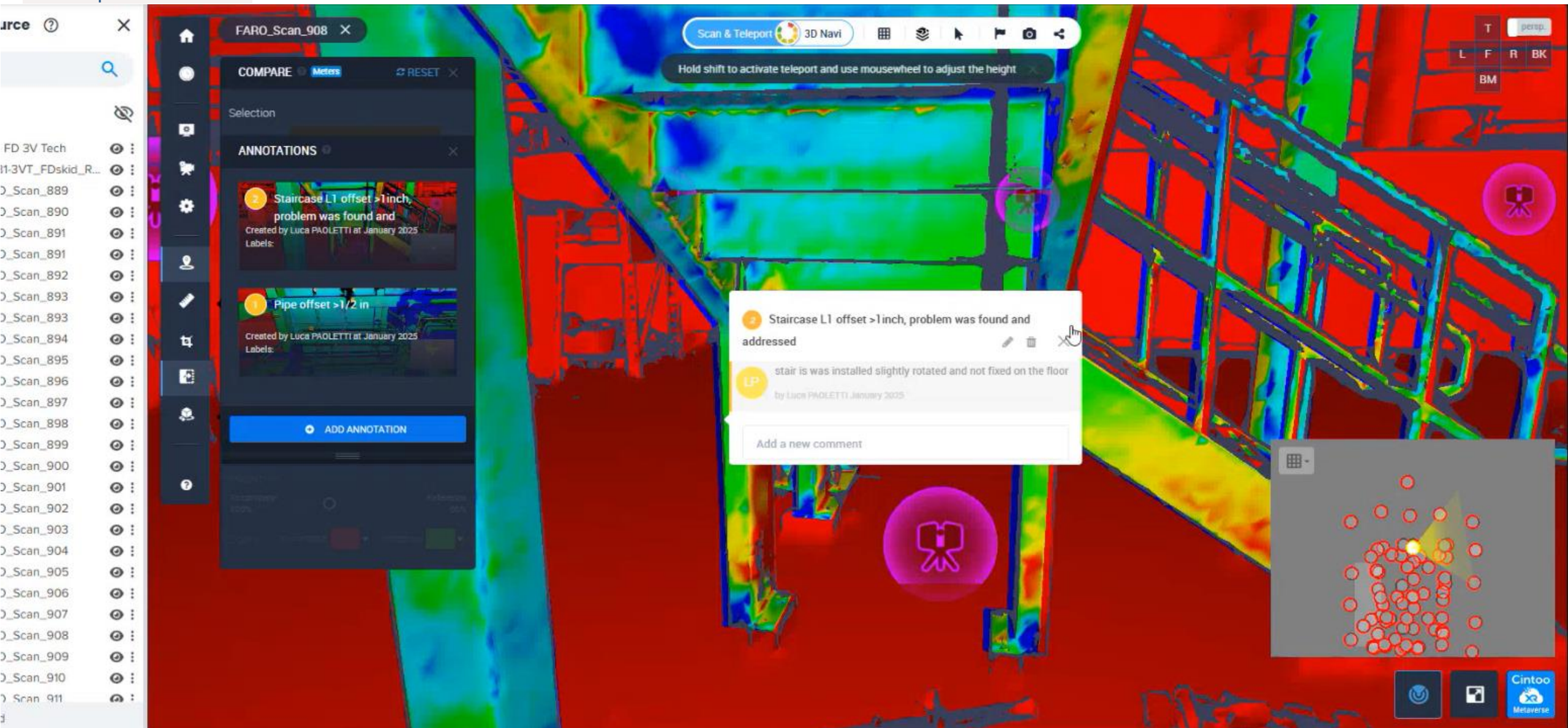
PATROCINIO:



Cantiere – Comparazione con Cintoo



Cantiere – Comparazione con Cintoo



Cintoo

MACS - FD 3V Tech

Exported by Luca PAOLETTI

Date: 14 January 2025 09:16 PM GMT

MACS - FD 3V Tech Report

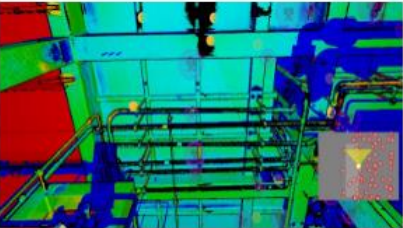
Work Zone Name:	MACS - FD 3V Tech	Work Zone location:	48.827026, 2.388973
Scan count:	81	Creation Date:	23 December 2024 02:52 PM GMT
Created by:	Luca PAOLETTI	Last Update:	23 December 2024 02:54 PM GMT

Notes	Private Note	Issues	Measurements
28	0	5	11

Notes

1

Pipe offset >1/2 in

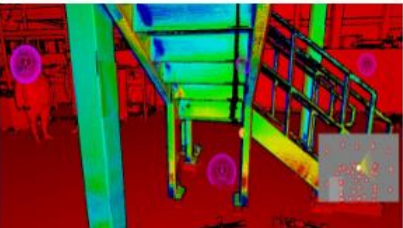


Created by:	Luca PAOLETTI
Created at:	08 January 2025 10:33 AM GMT
Position: (x, y, z)	it-us -614.6321, -1386.6742, 110.9596
Labels:	

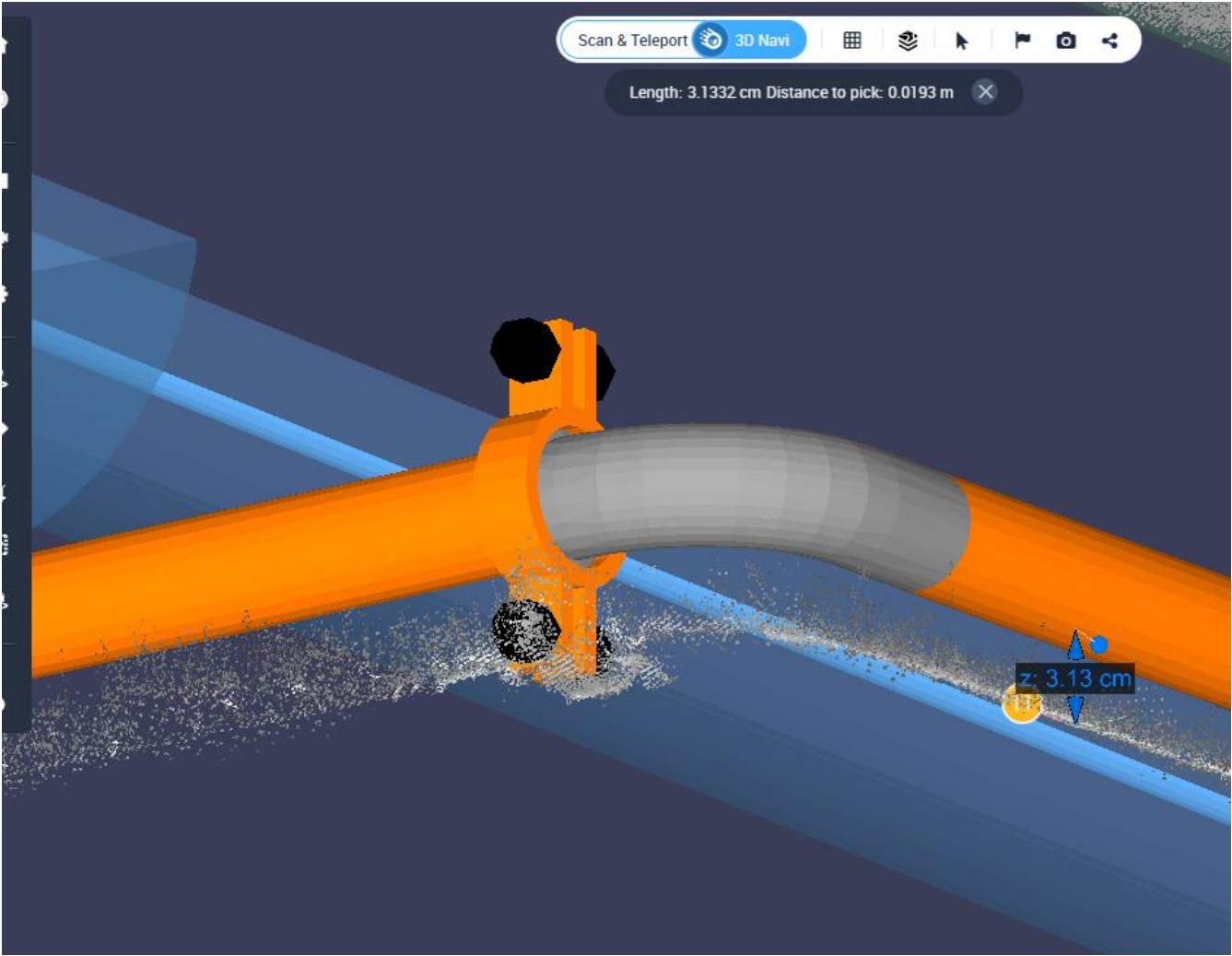
Description:

2

Staircase L1 offset >1inch, problem was found and addressed



Created by:	Luca PAOLETTI
Created at:	08 January 2025 10:34 AM GMT
Position: (x, y, z)	it-us -594.5449, -1374.1539, 102.5810
Labels:	



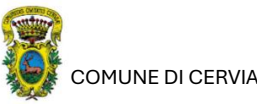
GOLD SPONSOR:



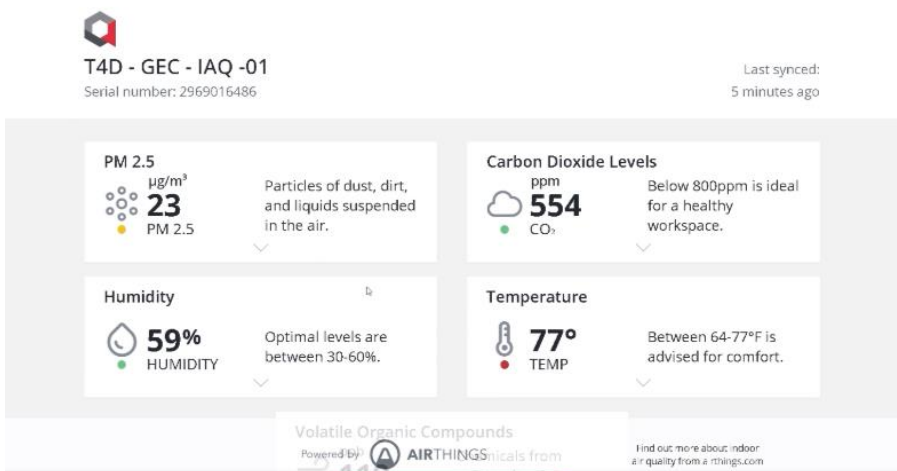
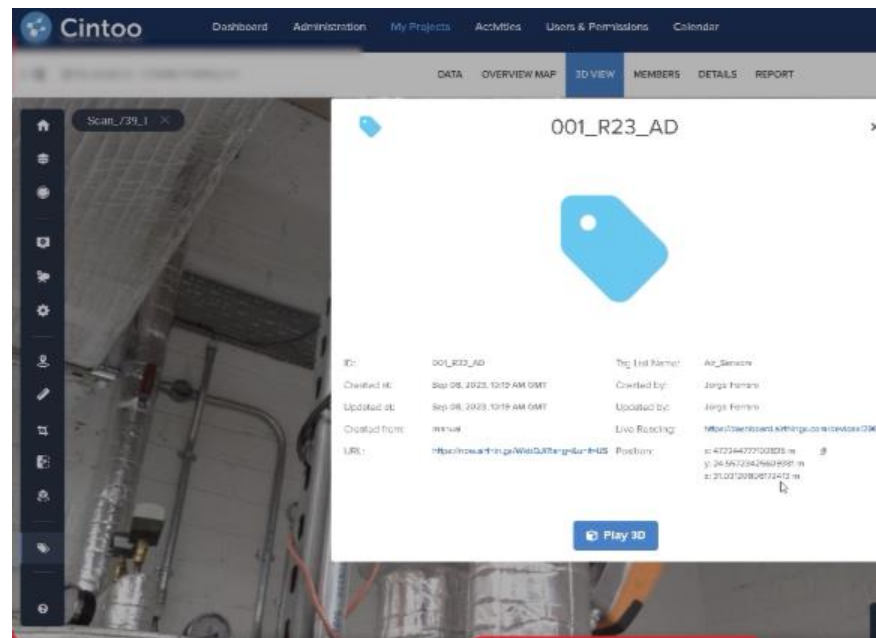
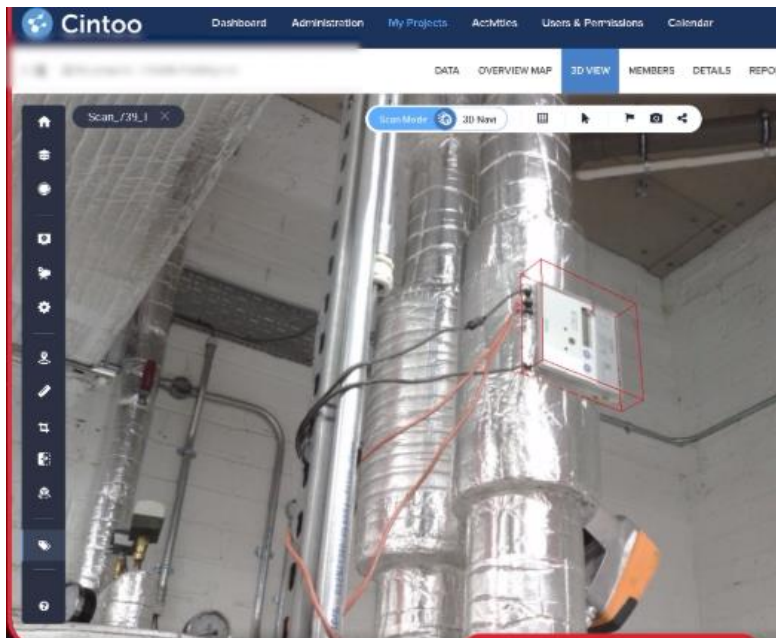
SILVER SPONSOR:



PATROCINIO:



Cantiere – Asset Tagging con Cintoo



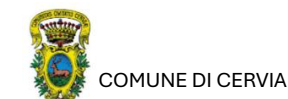
GOLD SPONSOR:

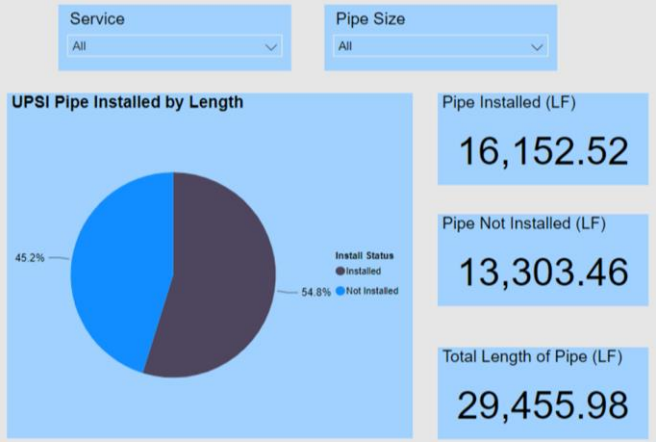


SILVER SPONSOR:



PATROCINIO:





Host

Auto-Zoom

Inspection Mode

Section Box

Match View Frame

Analysis

Camera

Orthographic

Scans

2023-06-07 - Angen - MFG-72

2023-06-07 - Angen - MFG-73

2023-06-07 - Angen - MFG-74

2023-06-07 - Angen - MFG-75

2023-06-07 - Angen - MFG-76

2023-06-07 - Angen - MFG-77

2023-06-07 - Angen - MFG-78

2023-06-07 - Angen - MFG-79

2023-06-07 - Angen - MFG-80

2023-06-07 - Angen - MFG-81

2023-06-07 - Angen - MFG-82

2023-06-07 - Angen - MFG-83

2023-06-07 - Angen - MFG-84

2023-06-07 - Angen -

Item Description

Geometry Surface Area

Coverage

Installation Status

Item Tolerance

Conduit without Fittings I Conduits: ...

143.856 in²

0.010

Installed

0.500 in

Round Pipe 1 Seam II MEP Fabricat...

1,911.168 in²

0.010

Not Found

0.500 in

Conduit without Fittings I Conduits: ...

217.008 in²

0.010

Not Found

0.500 in

45 Pressed B II MEP Fabrication Du...

671.904 in²

0.010

Installed

0.500 in

Mueller-Ind CU Type L ACR Tube x...

19.440 in²

0.010

Installed

0.500 in

II ACPPIPEINLINEASSET

49.824 in²

0.010

Not Enough Data

0.500 in

II ACPPCONNECTOR

34.992 in²

0.010

Not Enough Data

0.500 in

II Subentry

486.000 in²

0.010

Installed

0.500 in

II ACPPIPEINLINEASSET

33.984 in²

0.010

Not Enough Data

0.500 in

II Subentry

64.656 in²

0.010

Installed

0.500 in

II ACPPIPE

600.480 in²

0.010

Not Found

0.500 in

II Subentry

119.232 in²

0.010

Installed

0.500 in

II Composite Part

42.192 in²

0.010

Not Found

0.500 in

II Subentry

347.616 in²

0.010

Not Found

0.500 in

II Composite Part

125.856 in²

0.010

Installed

0.500 in

I Conduit Elbow - without Fittings - ...

244.944 in²

0.010

Ocluded

0.500 in

Transition II MEP Fabrication Ductw...

1,736.208 in²

0.009

Not Found

0.500 in

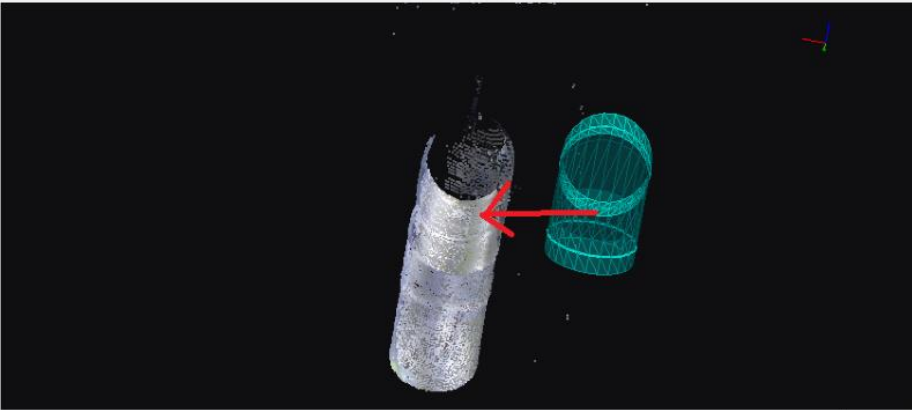
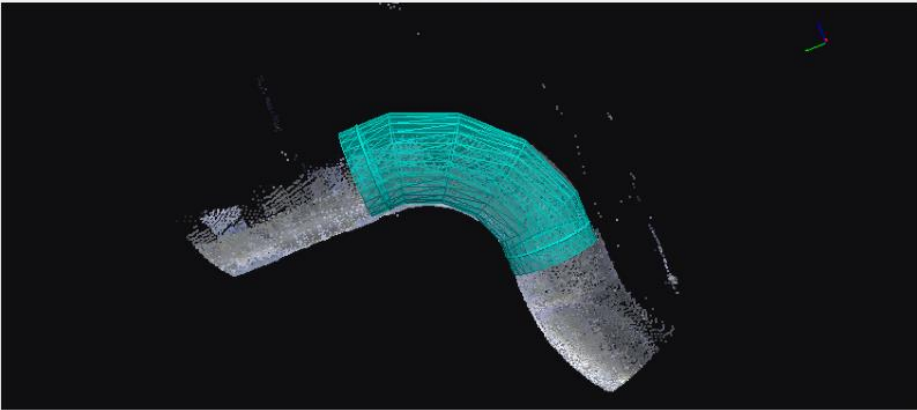
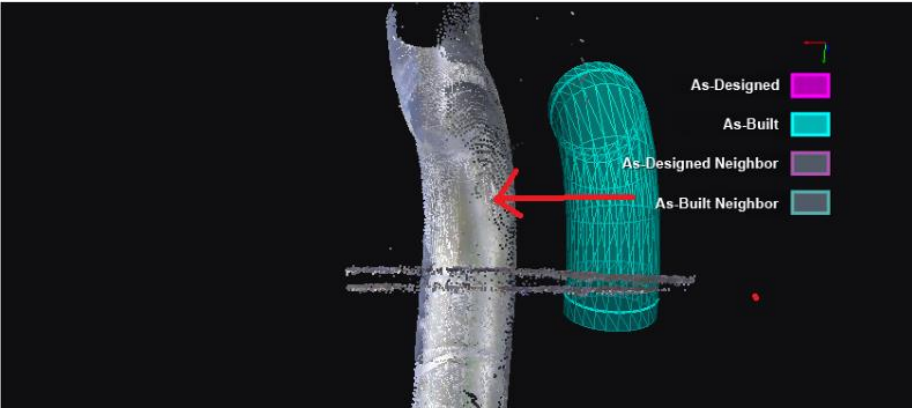
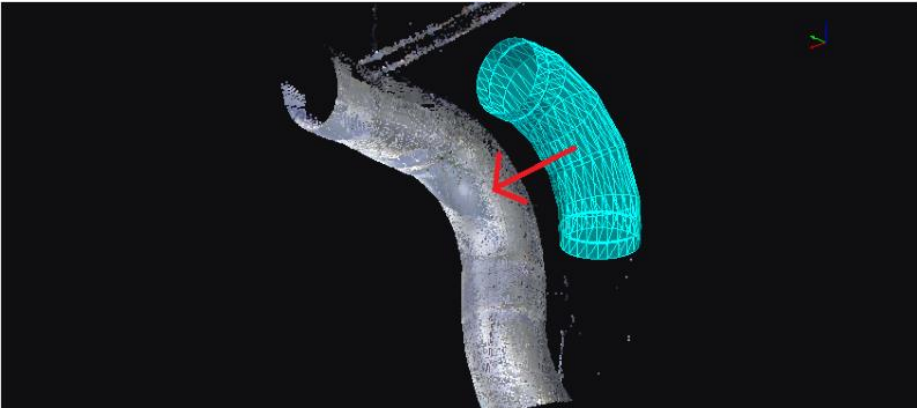
Conduit without Fittings I Conduits: ...

267.840 in²

0.009

Not Found

0.500 in



Item Description	Geometry Surface Area	Coverage	Installation Status	Item Tolerance	Conformance To Tolerance	Reviewer
Flex Duct Round Flex Ducts: Flex Duct Round: Flex - Round	1,752.768 in²	0.028	Not Found	0.500 in	N/A	
Transition MEP Fabrication Ductwork: Transition: Default	1,987.488 in²	0.027	Not Found	0.500 in	N/A	
Supply Diffuser - Rectangular Face Round Neck Air Terminals: Supply Diffuser - Rectangular Face Round Neck: 24x24 - 10 Neck	1,331.568 in²	0.023	Not Found	0.500 in	N/A	
Square Bend MEP Fabrication Ductwork: Square Bend: Default	2,497.824 in²	0.020	Not Found	0.500 in	N/A	
Generic Stamped Elbow - LR 90 MEP Fabrication Ductwork: Generic Stamped Elbow - LR 90: Default	886.464 in²	0.019	Not Found	0.500 in	N/A	
Round Volume Damper MEP Fabrication Ductwork: Round Volume Damper: Default	56.880 in²	0.018	Not Found	0.500 in	N/A	
Rectangular Straight MEP Fabrication Ductwork: Rectangular Straight Default	1,119.168 in²	0.016	Not Found	0.500 in	N/A	
Flex Duct Round Flex Ducts: Flex Duct Round: Flex - Round	859.392 in²	0.016	Not Found	0.500 in	N/A	

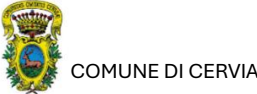
GOLD SPONSOR:



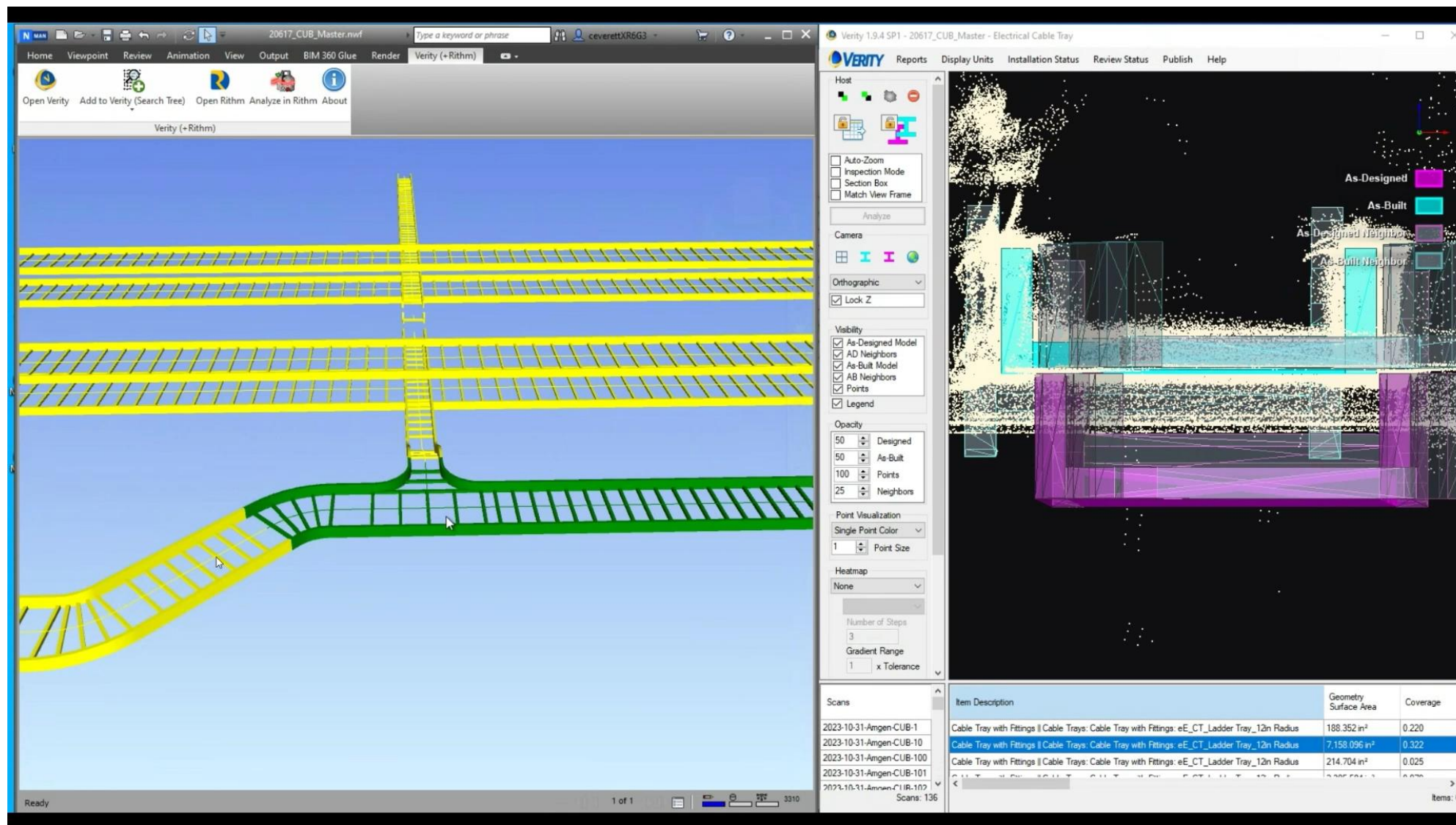
SILVER SPONSOR:



PATROCINIO:



Cantiere – Comparazione e adattamento modello con Verity



GOLD SPONSOR:



MAPEI

SOA LAGHI
ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:

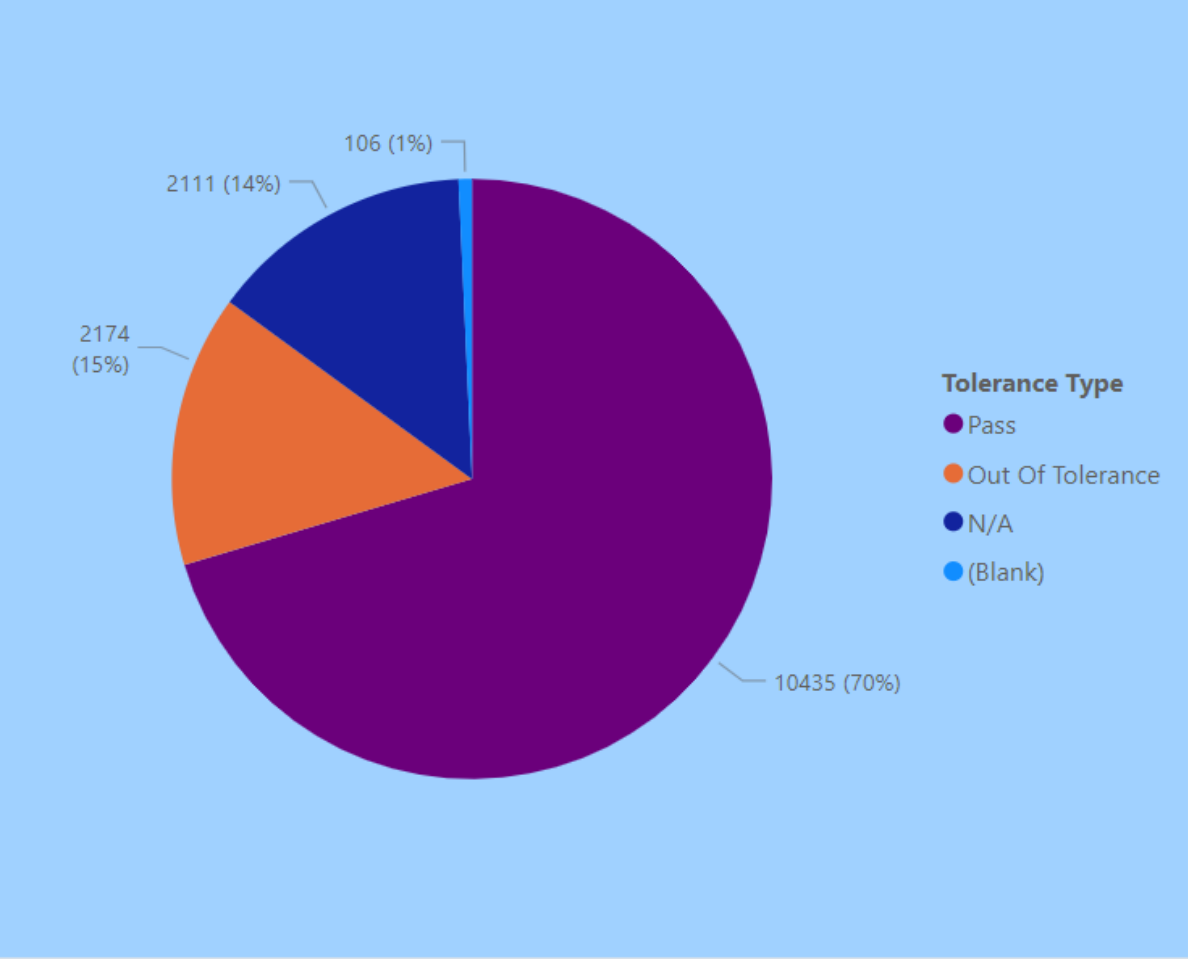


PATROCINIO:

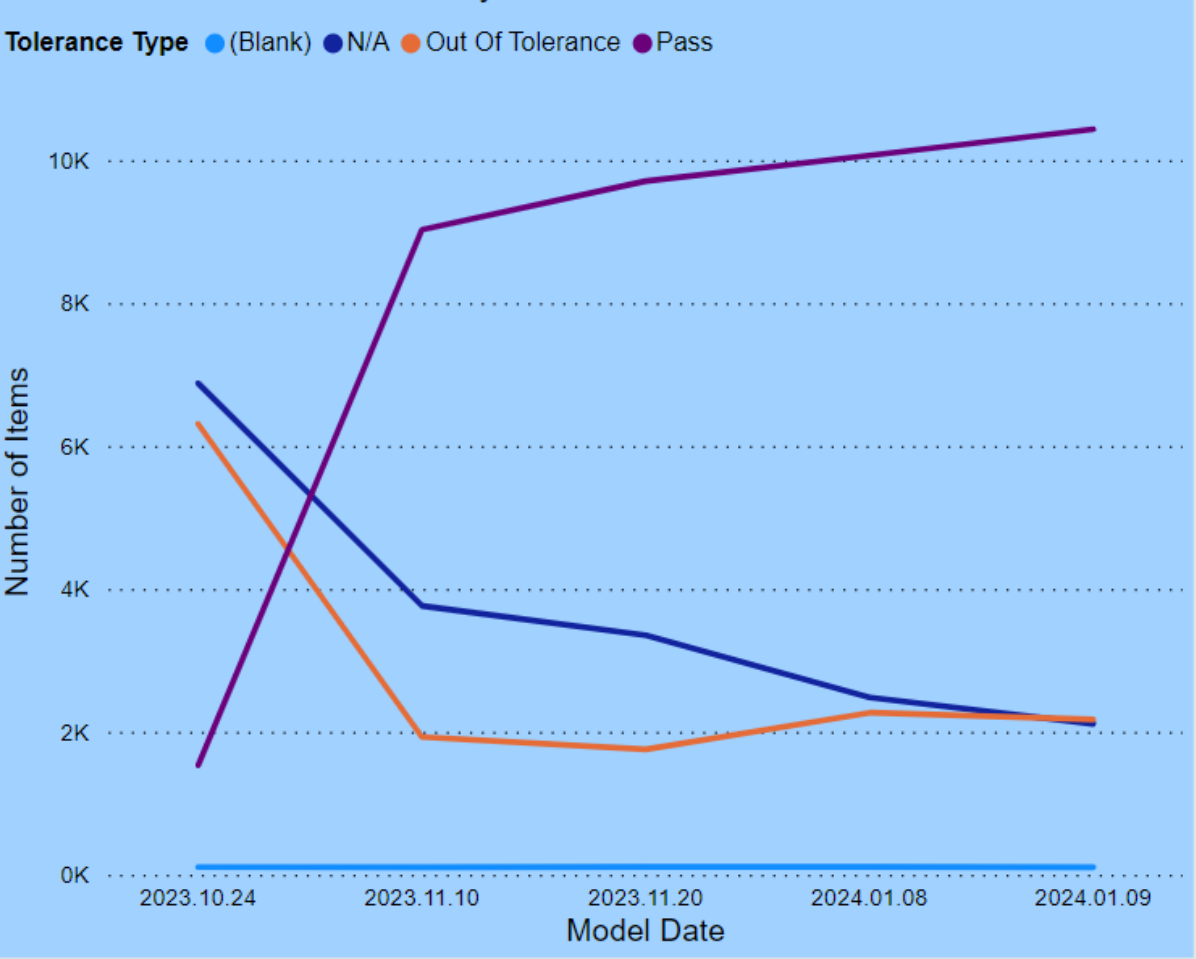


COMUNE DI CERVIA

As-Built Count



Count of Item Conformance by Date



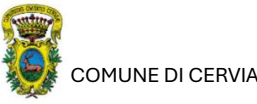
GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:



Cantiere – Comparazione e adattamento modello con Verity



GOLD SPONSOR:



MAPEI

SOA LAGHI

ORGANISMO DI ATTESTAZIONE S.p.A.

SILVER SPONSOR:



Parte del gruppo Hexagon

PATROCINIO:



COMUNE DI CERVIA

Comparazione Software per Monitoraggio Cantieri & As-Built Check

Caratteristica / Software	Cintoo	CupixWorks	Verity (ClearEdge3D)
Tipo di Dati Supportati	Nuvole di punti da laser scanner (BIM-to-scan)	Fotogrammetria 3D + immagini 360°	Nuvole di punti da laser scanner (Scan-to-BIM)
Tecnologia Principale	Cloud-based point cloud viewer & comparison tool	AI + Computer Vision per modelli 3D da foto/360°	Analisi automatica tra nuvola di punti e modello BIM
Controllo As-Built	✓ Comparazione BIM vs Scan in tempo reale	✓ Allineamento e confronto 3D di modelli e condizioni reali	✓ Precisione sub-millimetrica nella verifica delle tolleranze
Monitoraggio Avanzamento	✓ Visualizzazioni cronologiche + snapshot	✓ Timeline di avanzamento con modelli navigabili	✓ Confronto temporale tra scansioni per monitorare progressi
Collaborazione Cloud	✓ Multi-utente, commenti e issue tracking	✓ Accesso remoto, annotazioni e gestione ruoli	✗ Limitata (focus su desktop, non collaboration-first)
Navigazione Immersiva	✗ (vista su nuvola di punti, non immersiva)	✓ Navigazione tipo "Street View" immersiva	✗ Solo viewer tecnico 3D standard
Piattaforma	Web-based (browser)	Web + Mobile	Software desktop (Revit/Navisworks plugin)
Analisi Automatizzata	✓ Clash detection & deviation map	✓ AI per analisi variazioni da progetto	✓ Auto-verifica e report dettagliati sulle discrepanze
Output & Report	✓ Export PDF, CSV, BIM sync	✓ Export modelli, issue tracking	✓ Report PDF, CSV, overlay visivo sulle discrepanze
Integrazione BIM (IFC/Revit)	✓ Import/export IFC, integrazione BIM 360, Revit	✓ BIM 360, Procore, Revit, Navisworks	✓ Forte integrazione con Revit e Navisworks
Ideale per...	QA/QC tecnico, validazione BIM	Monitoraggio visivo continuo, gestione remota	Verifica automatizzata delle tolleranze e qualità as-built

Raccomandazioni d'uso:

- Cintoo** è ideale se si lavora intensamente con **nuvole di punti** e si vuole una **piattaforma cloud collaborativa** per QA/QC.
- CupixWorks** è perfetto per **monitoraggio continuo** e **navigazione immersiva**, utile anche per utenti non tecnici.
- Verity** è la scelta top per **analisi di precisione** in progetti ad alta complessità e per il **controllo dettagliato delle tolleranze** tra modello e costruito.

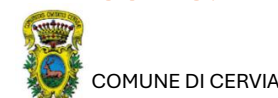
GOLD SPONSOR:



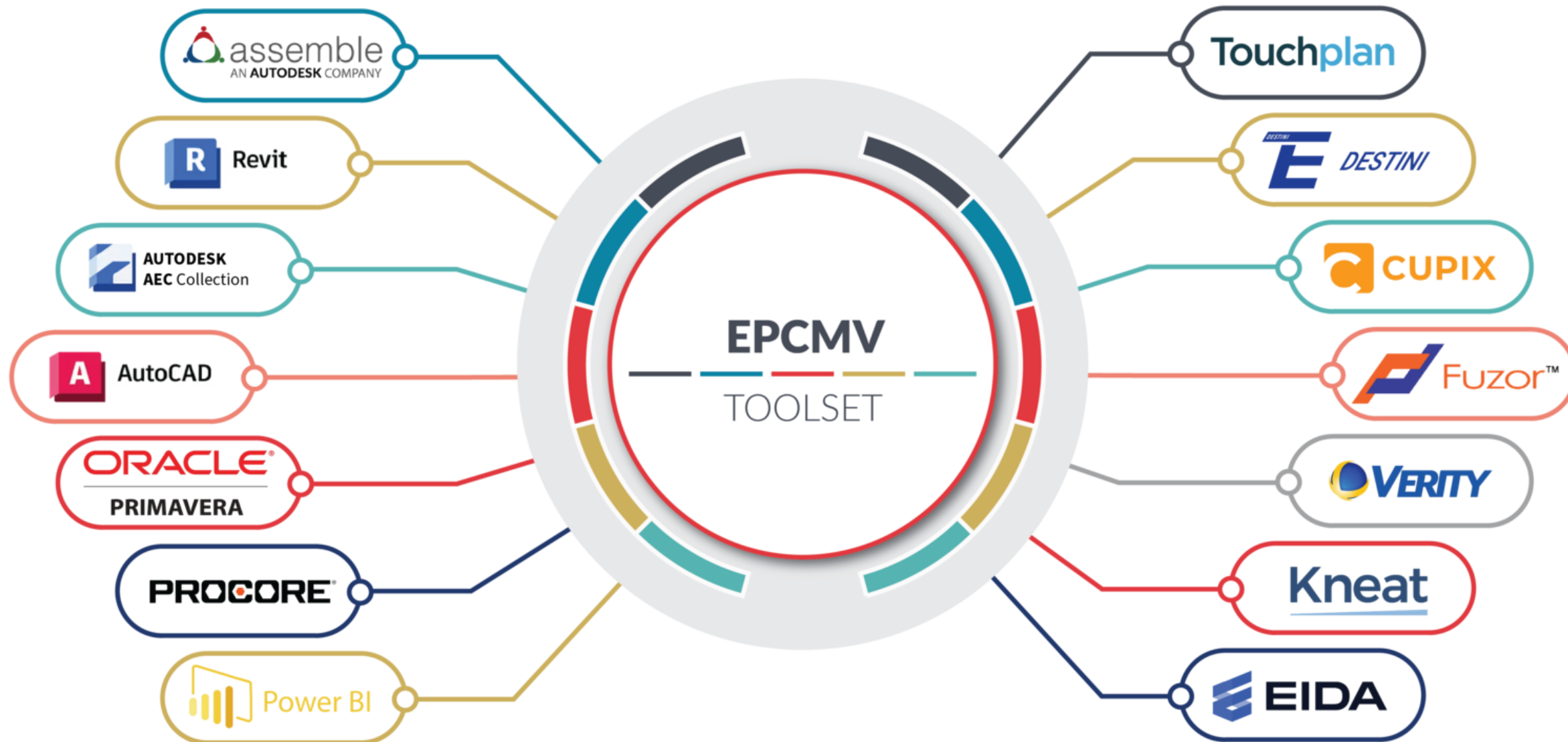
SILVER SPONSOR:



PATROCINIO:



IPS EPCMV Toolset



GOLD SPONSOR:



SILVER SPONSOR:



PATROCINIO:

