

BIM Delivers Tangible Benefits for the Construction Industry

CCC BIM Center Capabilities - Show case: Abu Dhabi Midfield Terminal Airport



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CCC B I M





CCC BIM department has been utilizing BIM Workflows for more than 22 years

BIM OPERATIONS BACKBONE

CENTERS OF EXCELLENCE	PROJECTS	BIM CONSULTANSY	BIM EDUCATION
Athens BIM Centre	AL BUSTAN STR NORTHROAD	HIGH END CLIENTS	CCC BIM ACADEMY
Cairo BIM Centre	SIDRA		PARTNERS
Palestine BIM Centre	AL ZAHIA QMPC MDP4	SIEMENS ADNOC ADAC	Zigurat Global Institute
	MALL OF OMAN	SUNWAY	of Technology

CCC B I M





CCC BIM: 5D Services











CCC BIM Academy





MASTER'S IN

Global BIM Management for Infrastructure **Projects**

THE FIRST GLOBAL PROGRAM FOR INFRASTRUCTURE MEGA PROJECTS

> **GLOBAL BIM** MANAGEMENT FOR INFRASTRUCTURE PROJECTS

Academic Content

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Block 2: Specialization (Select One)

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Block & Master's

Nock 3: BIM-based Advan **Project** Controls



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Final Thesis Contr















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Built Up Area :700 000Project Value :\$ 3 BillioPiers Aircraft Capacity :65Number of Gates :106Passenger Capacity :8500 / HourCheck in Counters :165BHS Capacity :19000 / HourBHS Length :22 Kilome

700 000 m2 \$ 3 Billion 5 106 500 / Hour 165 19000 / Hour 22 Kilometers





REQUIREMENTS



• Engineering

- Clash Mitigation and Design Coordination
- Develop and Implement an RFI system
- Extract and Support the development of Shop drawings
- Realistic digital mock-ups
- Project Controls / Planning
 - Cost Estimation
 - 4D studies, link to Primavera, Optimize Construction Schedule
 - Show Project resources (labor, material and equipment)
 - Progress monitoring and control
 - What if scenarios
- , Contractual & Quantity Surveying
 - Quantity take-off and measurements
 - Variation orders management and visualization
- Manufacturing
 - Digital fabrication

Handing over :

- As Built
- FM / AM Integration
- O&M Integration





3D Modeling



Bentley Tools allowed for :

- Intelligent models generation
- Addressed the complex design
- Visualized engineering situation through all construction phases





BIM Based Material Take Off – Scope Management

1							Schedule Table				a 121 - 2220		274.0	1 8	
Project Na	ne Buildin	g Level	System A	Activity	Sector	Description-1	Description-2	Handle	Length	Roon	4 A				
s MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15174	375.		1 Code	Description	v Unit v	Sum of Sum of Quantity IEC	Sum of Sum of Quantity BOS
4 MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15173	?		T CODE	Description	our s	Sum of Sum of Quantity in C	Sam of Sam of Cosmicil Boo
5 MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15164	375.		2 03-R-28-095-A	Pre-action system manual station points	pc	291	293
MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15163	?			and the state of the state			
7 MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15154	375.		3 03-R-28-095-B	Manual fire alarm pull station points	pc	744	744
s MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15153	2		03.R.28.095.C	Smoke detector points II O N type	00	3342	3356
MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15144	375.		05-11-20-035-0	Shoke detector points orong type	pr.	3542	335
so MTB	CP	LB.2	ELE-SP		5.16D	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15143	?		5 03-R-28-095-D	Smoke detector points U.O.N type, Duct	pc	36	26
III MTB	CP	LB.2	ELE-SP		5.16D	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	1512D	659.021		00 0 00 005 E	Air compliant complex detector points II O M	0.0	0030	3611
12 MTB	CP	LB.2	ELE-SP		5.16D	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	1511E	659.021		0 U3-R-28-095-E	Air sampling smoke detector points 0.0.N	pc	3309	3013
13 MTB	CP	LB.2	ELE-SP		5.16D	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	1510F	659.021		7 03-R-28-095-F	Elevator recall smoke detector points	pc	540	540
14 MTB	CP	LB.2	ELE-SP		5.16D	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	15100	659.021						
15 MTB	CP	LB.2	ELE-SP		5.12A	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15075	375.		8 03-R-28-095-G	Smoke/heat detector points	pc	785	78.
16 MTB	CP	LB.2	ELE-SP		5.12A	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15074	?		9 03.P.28.095.H	Heat detector points	loc.	573	54
17 MTB	CP	LB.2	ELE-SP		5.12A	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	15065	375.		03-N-20-033-H	near detector points	Pr.	515	
18 MTB	CP	LB.2	ELE-SP		5.12A	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15064	?		10 03-R-28-095-I	Addressable input module points	pc	2146	2148
18 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	15055	1045.734		1 200 00 00 000	Addresselle estert madule paints (Control)		1633	163
20 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15054	?		US-K-28-095-J	Addressable output module points (Control)	pc	1022	102
21 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	15053	629.218		12 03-R-28-095-K	Output relay points	DC	121	121
22 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	15044	945.734	8					
23 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15043	\$		18 03-R-28-095-L	Flow detector/switch points	pc	413	41
24 MTB	CP	LB.2	ELE-SP		5.12A	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	15042	529.218	é –	10 02 D 28 005 M	Tamper detector/quitch points		057	050
25 MTB	CP	LB.2	ELE-SP		5.120	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	1502D	375.		U3-R-20-033-W	ramper detector/switch points	pc	63/	63:
26 MTB	CP	LB.2	ELE-SP		5.12C	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	1502C	?		15 03-R-28-095-N	Low air pressure detector/switch points	DC	119	119
27 MTB	CP	LB.2	ELE-SP		5.12C	RGS	25.00 MM CONDUIT EMT SET SCREW US METRIC	1501D	375.						
28 MTB	CP	LB.2	ELE-SP		5.12C	RGS	25.00 MM DIAMETER 90.0 DEGREE CONDUIT ELBOW EMT SET SCREW US METRIC	15010	?	_	10 03-R-28-095-O	Horn; strobe assembly points; wall/ceiling	pc	1846	2050
28 MTB	CP	LB.2	ELE-SP		5.12C	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	1500D	986.974		17 03.8.28.095.P	Strobe points wall/ceiling mounted	00	4816	4781
30 MTB	CP	LB.2	ELE-SP		5.120	PVC	25.00 MM CONDUIT EMT SET SCREW US METRIC	14FFE	987.694		03-IN-20-033-P	anage hours want count monited	pc	4010	470.
MTR.	.00	18.3	FIF.CD		\$11D	2019	35.00 MAM CONDITITEMAT SET SCREW TIS METRIC	1.4550	975	_	0 300 0C 0 CO 0101	Ctraha asiate maximtad an eleman anot	A.C.	234	20

ROI : BIM Methods Reduced The Number of Quantity Surveying Team

from 60 to 6 - 90% Saving indirect Cost







Collaboration



Common Data Environment Workflow in PW Explorer

Name	Out to	State
// Lash1_Mech vs Struc.pdf		Published
Clash2_Mech vs Struct.pdf		Review
Clash4_Mech vs Struct.pdf		WIP



ROI :

Automatic Versions/Revisions Automatic Notifications File Tracking File Information from within Explorer Powerful and Fast Search Capability

i-Room



ROI :

Reduced The Cycle Of Critical RFI'S From 28 Days Down to (7 to 2) days



Clash Detection

- Reduction Of Costly On-Site Errors
- **Time Saving**
- Quality Improvement Of The Design
- Making Reliable Decisions Reducing Risks











BIM Workflows Eliminated the Need for Lengthy Approval Cycles for the Construction Schedules

- Validate the Construction Methodology
- Resolution of Constructability Concerns
 - Produce 'WHAT IFS ' Scenarios to enhance Construction Efficiency
- Visualization of Schedule to augment Cost Effective Scenarios

200 DAYS PROGRAM

SCHEDULED ANIMATION

VIRTUAL CONSTRUCTION SEQUENCE





Fabrication

Sustainability in Construction

Progressive Interface

BIM LASER SCANNING – AS BUILD

BIM Finishes Schedule

OPENING SCHEDULE - TRACEABILITY

Document Lifecycle Management and Traceability

