



This set of slides is intended for the use of the individual. If you are not the intended recipient responsible for delivering it to the intended recipient, are hereby notified that any use, dissemination, distribution or copying of this communication is strictly prohibited.

Part 2

Cases Studies

- How to setup a CAFM System
- Case Studies
 - Linking BIM to CAFM
- Tutorial Assignment

Case Study 1

How to setup a Facility Management CAFM System

DIFC Project

Oger Project Facility Management DIFC





5

Real Situation:

Paper Documentation

Documentations from MEP Contractors

	MEP - ASSET D	ATABASE					TRANE
	INDE	\mathbf{X}					
				Γ			ASSET DATABASE
)	HVAC				1 A	set Number	HVAC-001
				;	2 D	escription	Air Handling Units
Ç,	ELECTRICAL			1	3 C.	itegory	HVAC
				4	4 M	ake	Euroclima, Italy
SN	Room/Description	Location	- 6	Grid	1#		Please refer Annexure - A
1	Telecom Room no. 1	1	191N	191N		mber	Please refer Annexure - A
2	DIC TER Room No. 1	1	190N-1	891	N	tation	Planta refer Annexura - A
3	Etisalat Room No.1	1	1890			auon	Please reler Annexure - A
4	Telecom Room no. 2	1	1890			Period	One Year
5	DIFC Room No. 1	1	1890			and data	20124/2020
6	Delivery Bay No. 1	1	188N			enu date	300412009
7	Central Control Room	1	184N			details	-
8	ELV / Electrical Room No. 1	1	182N				
9	Delivery Bay No. 2	2	181L			nce instructions	Please refer Section - 10.1 of O & M Manual
10	Telecom Room No. 4	2	175N			are Parts provided	Please refer attached Annexure - B
11	Telecom Room No. 5	2	174N				Europima Baly
12	Delivery Bay No. 3	3	174N			urer's Details	www.euroclima.com
13	Telecom Room No. 6	3	169L				Faisal Jassim Trading Co., P. O. Box 1871, Dubai,
14	Delivery Bay No. 4	3	167L			etails	U.A.E. Tel. 04-339 5580, Fax - 04-339 5045 E-mail : fitrda@emirates.net.ae
15	Delivery Bay No. 5	3	167N				www.faisaljassim.ae
16	ELV / Electrical Room No.	3	165N			nt Details	Same as above
17	Delivery Bay No. 6	4	160N				
18	Electrical Room No. 3	4	159N	_		eference	TT/BIL/AC/AB/D4 To A2/-1.6/020 to 036
19	Telecom Room No. 7	4	158N			nual reference	Please refer Section - 10.1 of O & M Manual
	•			18	8 Re	marks	Letter of Order No. BILT/203/AC/06/4474 dated



7

First Step to a CAFM System:

Setup a Code System

Code system for all information at the CAFM

	ROOM CO	DDE								
SN	Room/Description		Code		e	n				
1	Central Control Room		CCRM		.	9.				
2	Compartment		CIMPT		D	nom Code	`			
3	Compactor Bay		СРТВ		17		,			
4	Corridor		CRDR		1	a Calla Cara J		_		
5	Carriage Way		CRGW	/	In	stallation		Э		
6	Diesel Generator Roor	n	DGRM	/			_	-		
7	DIC TER Room		DICR	/	E F	nuinment	Code	2		
8	DIFC Room		DIFC	/		Juburent	COU			
9	Delivery Dock		DLDC	/						
10	Delivery Bay					MEP SYSTEM'S COD)E			
11	Electrical Room	SN	Main System	Code		Sub-system	Code		Equipment	Code
12	ELV Room		Heating Ventilation Air							
13	Etisalat Room	1	Conditioning	HVAC	1,1	Air Conditioning System	ARC	ARC01	Air Handling Unit	AHU
14	Fire Fighting Tank		ŭ		,			ARC02	Fan Coil Unit	FCU
15	Fuel Tank Room							ARC03	DX Split Unit	DXU
16	Generator Room							ARC04	Cold Storage Unit	CSU
17	Irrigation Tank				1,2	Ventilation System	VNT	VNT01	Motorized Damper	MTD
18	Loading Bay							VNT02	Extract Fan	EXF
19	LV Room							VNT03	Fresh Air Fan	FAF
20	Pump Station (PS-SW0							VNT04	Supply Air Fan	SAF
21	Retail ETS Room							VNT05	ETR Fans	ETR
22	Security Guard Room							VNT06	Jet Fans	JTF
23	Security Room							VNT07	Tunnel Fans	TUF
24	Sewage Pump Room	2	Hydraulics	HYDR	2,1	Mechanical	MEC	MEC01	Irrigation Pumps	IRP
25	Substation Room							MEC02	Domestic Water Pumps	DWP
								MEC03	Fire Water Pumps	FWP
								MEC04	Chilled Water Pumps	CWP
								MEC05	Storm Water Pumps	STP
								MEC06	Pressurisation Unit	PRU
								MEC07	Chemical Dosing Pump	CDP
								MEC08	Sewage Main Pump	SWP

A C A



9

Setup Excel Sheets for

Data Collection

Example Installation, Equipment

	Inven	tory or E	quipment					Lo	ocatio	n					
Inventory- No.	ERP-No.	BarCode RFID-No	. Description	FaMe Code	Property No.	Building No.	Level	Room No.	τ)oor-Plat	e	Roo m Type	Grid N	los.	
													From	То	
0021	15-7100-11479		Air Handling Unit		2001	TT	SL	2600	Co	ompartmeni	nt-06 CMPT		130	131	
0021	15-7100-11479		Air Handling Unit		2001	TT	SL	2600	Co	ompartment	t-06	CMPT	130	131	
0022	15-7100-11480		Air Handling Unit		2001	TT	SL	2700	Compartment-07		CMPT	125	126		
0022	15-7100-11480		Air Handling Unit		2001	TT	SL	2700	Compartment-07		CMPT	125	126		
0022	15-7100-11480		Air Handling Unit		2001	TT	SL	2700	0. Cr	mnartmen	artment-07 (125	126	
0022	15.7100.114.91		Air Handling Unit		2001	тт	SI	2700		mostmool	mpartment-07		122	124	
0023	15-7100-11401		Air Handling Unit		2001			2700		mpartmen	07	CMPT	122	124	
0023	10-7100-11461	Uni	Air Handling Unit		2001		<u> </u>	2700	u antiana	Impartment	(-07		122	<u>124</u>	
0023			E	quipm	ent infori	nation					00	cuments			
0024			en		nent										
0024	System/	Equipmen	DCC Address	Tag	ı	Madal	Tane		Hata	Varranty	End of	Vand			TrawingelWarrant
0024	Sub-system	(Code)	DC3-Address	(As p	er	MOUEI		rgpe		(Months)	Varranty	Tenu		Manuaisrisrawingsrwarra	
0025		(Code)		drawi	ng)										
0025	HVAC-ARC	ARC01	ARC01-AHU01-0018	AHU0	6D ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00	1 TT-BIL	TT-BIL-AC-AB-C1-L-1.6-029-R0.d+	
0025	HVAC-ARC	ARC01	ARC01-AHU01-0018	AHU0	6D ZH	K 2000 S21/9	9 Decorative M001 12 31/04/2009 V001 Warrantu-		antu-AHU.pdf						
0026	HVAC-ARC	ARC01	ARC01-AHU01-0019	AHU0	7A ZH	ZHK 2000 S21/9 Decorative M001 12 31/04/2009 V001 Manual-AHU,p			al-AHU.pd	F					
0026	HVAC-ARC	ARC01	ARC01-AHU01-0019	AHU0	7A ZH	K 2000 S21/9		Decorative		12	31/04/2009	V00	1 TT-BIL	-AC-AB-	C2-L-1.6-030-R0.dwg
0026	HVAC-ARC	ARC01	ARC01-AHU01-0019	AHU0	7A ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00	1 Varrar	nty-AHU.p	df
0020	HVAC-ARC	ARC01	ARC01-AHU01-0020	AHU0	7B ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00	1 Manua	al-AHU.pd	F
	HVAC-ARC	ARC01	ARC01-AHU01-0020	AHU0	7B ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V001	1 TT-BIL	-AC-AB-	C2-L-1.6-030-R0.dwg
	HVAC-ARC	ARC01	ARC01-AHU01-0020	AHU0	7B ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00	1 Warran	nty-AHU.p	df
	HVAC-ARC	ARC01	ARC01-AHU01-0021	AHU0	7C ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00	Manua	al-AHU.pd	f
	HVAC-ARC	ARC01	ARC01-AHU01-0021	AHU0	7C ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	V00		-AC-AB-	C2-L-1.6-030-R0.dwg
	HVAC-ARC	ARCUI	ARC01-AR001-0021	AHU0	7C ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	¥00	Varrar	nty-AHU.p	df
	HVAC-ARC	ARCO	ARC01-AR001-0022	AHU0	/U ZH	K 2000 S21/9		ecorative	M001	12	31/04/2009	¥00	Manua Manua	al-AHU.pd	
		ARCOL	ARC01-AH001-0022	AHU0		K 2000 S21/9		ecorative	M001	12	31/04/2009	V00		-AC-AB-	C4-L-1.6-031-R0.dwg
	HYAC-ANC		AHC01-AH001-0022	AHUU	∩γ <u>∠</u> ⊓	K 2000 32 ir3	U	ecorative	IM001	12	510412003	¥00	warrar	itg-AHU.p	ar

Æquipment to Maintain Location

Installation Equipment of Installation Available Documentation

CACADE the built environ

Example Spare Parts

				r	facture	Manu					
	Recommended Spare Parts	uipment Parts As Installed)	- I	Part-no.	Supplier name	Manufacturer Name		ription	Des	UNIT	SN
	2		101	680,026.001 .a.	V001	M001		Supply Air	Fan-	HU-01A	0001
	2		102	680,026.001 .a.	V001	M001	Supply Air	bearing (1 set) -	Fan	HU-01A	0002
	2		103	680.026.001 .a.	V001	M001	ir	oullev-Supply Ai	Fan	HU-01A	003
	2		111	680.026.001 .a.	V001	M001		r-Supply Air	Moto	HU-01A	004
	2		112	680.026.001 .a.	V001	M001	-Supply Air	r bearing(1 set)	Moto	HU-01A	005
	2		113	680.026.001 .a.	V001	M001	Air	r pullev- Supply	Moto	HU-01A	0006
	2		121	680.026.001 .a.	V001	M001	Air	1 set)- Supply A	Bell	HU-01A	007
	1		131	680.026.001 .a.	V001	M001	ipply Air	ter 1st step- Su	Prof	HU-01A	008
				Orier					Incli	HU-01A	009
			_	Uger					Fan	HU-01B	010
Base	Description	лу	Cate	Keyword		Class	Group	Memcode	Fan	HU-01B	011
	•	-		-				15 7400 44202	Fan	HU-01B)12
								15-7100-11303	Mote	HU-01B	13
								15-7100-11305			
								15-7100-11307			
								15-7100-11308			
								15-7100-11309			
								15-7100-11310			
								15-7100-11311			
								15-7100-11312			
								15-7100-11313			
								15-7100-11314			
								15-7100-11316			
								15-7100-11317			
								15-7100-11318			
				\				15-7100-11319			
								15-7100-11321			

11

C A U

Example Material List (Inventory)

				R		n List-bu	ILDING MANAGEMENT	Equi	pm	ent		
	System/ sub-system	Level (SL/TL)	Room No.	Door Plate	Grid From	nos. To	Equipment/Material	Equipment/ Material Type	, QTY.	Equipment Tag (As per drawing)	Manufacturer	Supplier
	LCRS-BMS	TL	1307	Retail Delivery Bay-D6	155	156	Out Station Panel	DDCPanel	1	0S-8.0-14	M020	V020
	LCRS-BMS	TL	1164	Water Pump Room-1	148	149	Out Station Panel	DDCPanel	1	0S-8.0-15	M020	V020
+	LCRS-BMS	TL	1187	Water Pump Room-2	123	124	Out Station Panel	DDCPanel	1	0S-8.0-16	M020	V020
C	LCRS-BMS	TL	1204	Electrical Room-07	109	110	Out Station Panel	DDCPanel	1	0S-8.0-17	M020	V020
-	LCRS-BMS	TL	1209	Electrical Room	105	106	Out Station Panel	DDCPanel	1	0S-8.0-18	M020	V020
Ψ	LCRS-BMS	TL	1218	Electrical Room	40a	41a	Out Station Panel	DDCPanel	1	0S-8.0-19	M020	V020
F	LCRS-BMS	TL	1101	Security Guard Room-02	-	199	Out Station Panel	DDCPanel	1	0S-8.0-20	M020	V020
2	LCRS-BMS	TL	1111	Security Room-01	190	191	Out Station Panel	DDCPanel	1	0S-8.0-21	M020	V020
C	LCRS-BMS	TL	1111	Security Room-01	190	191	Out Station Panel	DDCPanel	1	0S-8.0-22	M020	V020
0	LCRS-BMS	TL	1114	LV Room-01	187	188	Out Station Panel	DDCPanel	1	0S-8.0-23	M020	V020
Č.,	LCRS-BMS	TL	1141	LV Room-02	169	170	Out Station Panel	DDCPanel	1	0S-8.0-24	M020	V020
÷.	LCRS-BMS	TL	1154	LV Room-03	157	158	Out Station Panel	DDCPanel	1	0S-8.0-25	M020	V020
	LCRS-BMS	TL	1181	LV Room-04	125	126	Out Station Panel	DDCPanel	1	0S-8.0-26	M020	V020
>	LCRS-BMS	TL	1216	Electrical Room	34B	35A	Out Station Panel	DDCPanel	1	0S-8.0-27	M020	V020
C	LCRS-BMS	TL	1691	Carriageway	18	19	Out Station Panel	DDCPanel	1	0S-8.0-28	M020	V020
-	LCRS-BMS	TL	1111	Security Room 1	190	191	FCU Controller		1	FCU 01	M020	V020
Φ	LCRS-BMS	TL	1111	Security Room 1	190	191	FCU Controller		1	FCU 01	M020	V020
	LCRS-BMS	TL	1118	Retail ETS Plant Room 1	188	190	FCU Controller		1	FCU 02A	M020	V020
+	LCRS_RMS	TI	1118	Retail FTS Plant Boom 1	188	190	ECII Controller		1	ECIL 0.2B	M020	V020

Example Supplier List

			/	Ec	quip	men	t			/ Vend	or
Equipment Code			Equipme	nt	I	/lanufacturer Code	Manufacturer Name	Ven Co	dor de	Vendor Name	2
AHU		Ai	r Handlin	g Unit		M001	Euroclima	V0	01	Faisal Jassim Trd	g Co.
FCU			Fan Coil U	Jnit		M002	Trane, Taiwan	V0	02	Trane S.A	
DXU			DX Split U	Init		M003	York	V0	03	Gulf Sail Gen. Trdg	Co. LLC
CDS		Co	ld Storag	e Unit		M004	Danfoss/Friga Bohn Denmark	V0	04	Bindas Mal A/C	Ref.
MTD		Mo	otorized D	amper		M005	Ruskin, Thailand	V0	05	IGC Aire	
EXF			Exhaust F	an		M006	Nuaire, UK	V0	06	Ambience Technology	M.E. LLC
FAF			Fresh Air	Fan		M006	Nuaire, UK	V0	06	Ambience Technology	M.E. LLC
SAF		S	upply Air	Fan		M006	Nuaire, UK	V0	06	Ambience Technology	M.E. LLC
ETR									I		
JTF		P.O. Box	City	Country	Tel. #	Fax #	E-mail 1			E-mail 2	E-mail 3
TUF		1871	Dubai	UAE	04-339 558	0 04-339 5045					
IRP		1300	Dubai	UAE	04-346 009	0 04-346 0091					
DWP		6713	Dubai	UAE	04-265 199	9 04-265 3337					
FWP		5389	Dubai	UAE	04-806 777	7 04-806 7788	bindasmalgroup@bindasmal.e	com			
		8924	Dubai	UAE	04-283 040	3 04-283 0302					
		14327	Dubai	UAE	04-272 239	3 04-272 3224					
		14327	Dubai	UAE	04-272 239	3 04-272 3224					
		14327	Dubai	UAE	04-272 239	3 04-272 3224					
		14327	Dubai	UAE	04-272 239	3 04-272 3224					
		3562	Dubai	UAE	06-534 347	7 06-534 3756					
	ļ	3562	Dubai	UAE	06-534 347	7 06-534 3756					
		41	Dubai	UAE	04-266 630	0 04-226 614	sales@mahykhoory.com				
		41	Dubai	UAE	04-266 630	0 04-226 614	<u>sales@mahykhoory.com</u>				

Vendor Address

13

c Ø E

The built envir

Example: Maintenance Catalog

No	System/ Sub-system	Unit	Equipment	No	Part	No	v	/orkoi	rder	
00001	HVAC-ARC	AHU	Air Handling Unit	001	Air Supply Fan Section	001	Check belt tension. Replace if necessary.			
00001	HVAC-ARC	AHU	Air Handling Unit	001	Air Supply Fan Section	002	Lubricate motor bearings if greaseable and	if nec	essary	'.
00001	HVAC-ARC	AHU	Air Handling Unit	001	Air Supply Fan Section	003	Lubricate fan shaft bearings if greaseable a	and if n	ecess	ary.
00001	HVAC-ARC	AHU	Air Hand						Mont	lf/Who
00001	HVAC-ARC	AHU	Air Hand			Work	order	Days	h	necessa
00001	HVAC-ARC	AHU	Air Hand							
00001	HVAC-ARC	AHU	Air Hand	elt ter	ision. Replace if necessary				1	
00001			Air Handl	e moti	or bearings if greaseable an	d if ne	ecessary.		1	
00001			Air Hand Destination	e fan s	shaft bearings if greaseable	and r	t necessary.		1	
00001			Air Hand Tight od	repia	icement it needed to be dor	ie as	additional work.		1	
00001			Air Hand Tight Sei	ullov (ws ior ian snait beannys. alianmant				3	
00001			Air Hand Mooourg	uney (angrimerit. progo and voltage of motor /	at all a	analda and record on Form EM7201 AHLLO2		2	
00001			Air Hand Measure	amp	inculation for motor record	atan : ////	speeds and record on Form FM7201-AUL02		2	
00001			Air Handi Measure	eann r coili	na domogo, correcion ond	(meg	a unim) reading on Furm FM7201-AH0-03.		12	
00001			Air Hand Clean filt	ers (d	lust cleaning)	anyı	endency to bind and clean as necessary.		1	
00001			Air Hand Clean is	traine	r				6	
00001	HVAC-ARC	AHU	Air Hand Move an	d area	ase all valves and return the	alobe	e valve to its initial position.		6	
	HVAC-ARC	ΑΠΟ	Air Hario Brush ar	nd pai	nt pipes valves whenever ne	cess	ary.		6	
			Cross cl	neck t	hermometers and pressure	gaug	e (if available).		6	
			Clean co	oling	coil.				12	
			Cleaning	of co	mplete AHU Internally & Ex	derna	illy.		1	
			Fill Form	EM7	201-AHU-01 (Monthly Sec.)).			1	
			Fill Form	EM7	201-AHU-04 (Quarterly Sec	:.)			3	
			Fill Form	EM7	201-AHU-05 (Semi-Annuall)	y Sec	c.).		6	
			Fill Form	EMZ.	201-AHU-06 (Annual Sec.).				12	
			Check d	rainag	je tacility. und attenuater				12	
			Cleaning	OT SO	und attenuator.				12	

Planned

Time(min) 6,25 7,5 7,5 5 6,25 5 6,25 6,25 6,25 25 6,25 6,25 6,25 6,25 12,5 12,5 12,5 12,5 12,5 12,5 3,75 6,25 6.25

Form

Example: CAD Space Drawings



Example: CAD Technic Drawings



to Installation

Example: Operation Manuals





18

Setup

CFM System with

imported Excel-Data

Example: Login User Rights



Example: Asset Address



Example: Installtaion Information



Example: Maintenance Catalog AHU

	INT > Facility Management > Maintenar	nce > Catalog	
	Catalog	2001-AHU	S
	Description	Air Handling Unit	
	Measures 🧱 🥔 [PM 🚺	S
-	Description	Preventive Maintenance	! S
C 0	Text Type 🧱 🥔		
2	1st Classification Level	Short Description	Description
	2nd Classification Level	Soiling, damages & corrosion Belt Tension	Check for soiling, damages, corrosion and any tendency to bind and clean as necessary Check belt tension (replace if necessary)
0	3rd Classification Level	Pulley alignment	Check pulley alignment
	Accounting Area 📳 🥔	Fan shaft bearing	Lubricate motor bearings in greaseable and if necessary Lubricate fan shaft bearings if greaseable and if necessary Note: Bearings replacement if needed shall be done
- 2	Account	Informing BMS Operator	Inform BMS Operator of equipment to be serviced
0		Informing BMS Operator Cleaning of strainer	Once serviced equipment is completed, inform BMS Operator Clean strainer
0	Catalog	Greasing of valves	Move and grease all valves and return to its initial position
+	Catalog	Brushing & painting of valves Checking of thermometers	Brush and paint pipes and valves as necessary Cross check thermometers and pressure gauge (if available)
4-		Cleaning of cooling coil	Clean cooling coil
2	Tooko	Cleaning filters	Clean filters Note: use high speed blower or high pressurized water if necessary
Ω	Tasks \	Insulation Rating	M
		Insulation Rating M2	M
		Voltage Rating T1-T2	M
E .		Voltage Rating T2-T3	M
()+		vollage (Valling 15-11)	m

U

10 c

Example: Maintenance Order AHU

	INT > Facility Management > Maintenance > Main	tenance Order	
	Catalog Collection 📳 🥔 2001-AHU	! S Orde	r 2001-AHU IS
	Description Air Handling) Unit	<u> </u>
			<u> </u>
	Description Air Handling) Unit	
	Start 🗓 01.05.2009	End E	30.04.2012
с <u>ь</u>	Next Maintenance 🗓 01.05.2009	Generated Checklists 🗖 Dyna	mically generated Objects
Responsible	Costs 0.00	AED 📑 🥔 Planned Tim	e 130662 🦷 min 📑 🥔
🗄 Company 🔪	Activation 🧱 🥔 Variable	Priority 🧱 🧉	C-Urgent Priority within 24 hou
c c	Responsible Person 🧱 🥔 EL KAAFAR/	ANI First Nam	e AHMAD
0	Company Oger Dubai	Tear	n DIFC
Function 🥄	Telephone +9714 8857	742 Guideline Level	2
-	Actuating Company 🧱 🥔 Oger Dubai	Client No.	. 00 !
	Function 📳 🥔 ASST. HVAC	Comment	S ASST.HVAC TECHNICIAN
Project Code	Project / Cost Carrier 🧱 🥔 2001	P Booking Are	a FaMe-English !
· · · · · · · · · · · · · · · · · · ·	Project Description DIFC Truck	Tunnel	<u> </u>
Crdor >			
	Order No. 📳 🥔 Operation T	unnel DIFC Positio	n 04
5	Single 01	Short Des	AHU Air Handling Unit

Example: Spare Parts Order AHU



Example: Maintenance Order



Example: Overview Maintenance Order

	Intervall	\backslash		Мо	nt	h 🔪		St	atus						
		\backslash							\backslash						
				-										L p	
			-	Frequency		January	/		February		M	arch			
	SN Equipment	Fa	Q		1	234 P	C	%	1234 P C	%	1234	P	C o	%	123
		M	a			а	m		a m			a	m		
		e -	n t	MQSA		n	P		n p n l	$\setminus $		n n	p I		
+		C	i			e	e t		e e d t	$\langle \rangle$		e d	e t		
~ ~		ď	ý			ŭ	ė		e	N		ŭ	ė		
		e			_		d		d		<u> </u>		d	━┿	
0	A Fire Suppression	EMD	13			13	0	0	12 12	100		12	13	100	
Installations			15	V	_	15	U	0	V 15 15	100	V	15	15	100	
$m_{\rm Stanations} =$	B Heating Ventilation Air Conditioning Air Handling Unit		34	1 1 1 1		34	0	0	34 0			34	0		
	2 Cold Storage Unit	CSU	8			8	0	0	0 0	0		0	0	ő	
0	3 DX Split Unit	DXU	75			75	0	0	75 75	100	11	75	75	100	-
	4 ETR Fans	ETR	40	×		40	0	0	0 0	0	V V	0	0	0	
	5 Fan Coil Unit	FCU	104			0	0	0	0 0	0	JJ	104	104	100	
	6 Jet Fans	JTF	28			0	0	0	0 0	0	V V V	28	28	100	
-	7 Motorized Damper	MTD	334		,	0	0	0	0 0	0		0	0	o	
C 2	8 Tunnel Fans	TUF	7	~		0	0	0	77	100		0	0	0	
Φ	9 Supply Air Fan	SAF	8	× ×	·	8	0	0	0 0	0		0	0	0	
	10 Extract Fan	EXF	29	 ✓ ✓ 	·	29	0	0	0 0	0	ĺ	0	0	0	
0	11 Fresh Air Fan	FAF	16	 ✓ ✓ 	r	0	0	0	0 0	0		16	0	0	
	C Hydraulics														
-	1 Chemical Dosing Pump	CDP	2		r	0	0	0	0 0	0		0	0	0	
-	2 Chilled Water Pumps	CWP	8	~	r	0	0	0	0 0	0		0	0	0	
-	3 Domestic Water Pumps	DWP	3	1	'	0	0	0	0 0	0		0	0	0	
Ω	4 Fuel Transfer Pumps	FTP	1	4 4 4	r	1	0	0	1 0	0		1	0	0	
	5 Fire Water Pumps	FWP	3			0	0	0	0 0	0		0	0	n	





Setup

Client Service



28

Special Application

Tunnel Booking

Map / Overview Traffic



Booking Matrix / Overview Traffic



SER DUBAI	R ABU DHABI e to Oger Dubai Facilities Mar	agement Portal
Sign in		
Username Password		Oger Dubai Facility Management Optimized for a screen resolution of 1024 x 768 px. Minimal requirements MS Internet Explorer 6.0

www.ogerdubai.net www.ogerabudhabi.ae









The menu tree on the left hand side consist of 5 main links in which every link has its own sub-screens

1- Fault Report: is mainly used to report a fault. Once the fault is submitted, our desk agent will receive the order and will escalate it to respective service department where action will be taken accordingly

2- Overview Tasks: is mainly used to overview the status of all orders including the status of the fault reports that were submitted by the client
3- Tunnel Traffic (List): is mainly used for logistics services, where the subscreen will display all truck delivery activities such as booked, processed, late deliveries, in-tunnel vehicles etc...

4- Tunnel Traffic (Map): is used to overlook the activities summary of all active bays in that hour i.e.:

- 1- how many trucks are booked in that hour
- 2- how many trucks are in tunnel in that hour
- 3- driver/truck/delivery related information can be accessed etc...

5- Messages: this is Oger's message center where we post information related to the operation, upgrading of the system, etc...










The color of the boxes helps you to navigate throught the form. Fill out the fields in the boxes that are colored in dark blue.

Please enter your name or the name of a contact person for possible queries.

You can also enter an alternate location if not at your registered address.

Use the listbox to select the nature of the problem or give a brief description. At the end you can add any comments you wish to make.

Use the check symbol to submit your report. Your will recieve a confirmation number. Please note this for possible queries.

Next, you enter the description of the fault where you can give more details/information about the fault you are trying to report.













The color of the boxes helps you to navigate throught the form. Fill out the fields in the boxes that are colored in dark blue.

Please enter your name or the name of a contact person for possible queries.

You can also enter an alternate location if not at your registered address.

Use the listbox to select the nature of the problem or give a brief description. At the end you can add any comments you wish to make.

Use the check symbol to submit your report. Your will recieve a confirmation number. Please note this for possible queries.

As a final step, you simply click on "Submit" to submit your fault

Fault Submitted

Problem report

The Problem Report was successfully recorded under order no: 1424763

> Once the fault is submitted, you will prompted to this screen where you are informed that your fault was successfully reported and will be issued an order number that you should keep for references

> > Thank you for working with FaMe

return to start page 🟠









respective service department, the measure will be changed accordingly i.e. to SR, CM etc...

all requestors -	all status	*	all measures	3.	7 Days	•	
🔵 in progress 🔴 open 🌔	completed						















Work Order Details Enquiry

DIFC Truck Tunnel Project

Powered by Oger Dubai

Logout

To enquire about any work order details, you simply drive the cursor to desired order and an instant flyover information box will appear displaying available details

6 6 4 6 10

Fault Report					
i auii Reputi	1 1	187	20	21	10
and the second se	1 61	2.4	1	91	
			-0		

Overview Tasks

Tunnel Traffic (List)

Tunnel Traffic (Map)

Messages

	Order No.	Date	Requestor	Status	Measures	Tag	Message Text	1
	1424701	11/07/2010	EL KAAFARANI	Open	PM	Generator 4	4 : 2001-GEN	
)	142 Process:	00/10.11.07-295	500 Created on: 11/07/2010 Status: Open	Open	PM	Generator 3	3 : 2001-GEN	
)	142 Requesto	or: Phone:	SULUS: OPEN	Open	PM	Generator 2	2 : 2001-GEN	
)	142 Location: Barcode:	2001 Tunnel L Generator 4	evel-8 1182	Open	PM	Generator 1	: 2001-GEN	1
)	1424536	11/03/2010	EL KAAFARANI	Open	PM	FM200 13/1	13 : 2001-FMP	
)	1424534	11/03/2010	EL KAAFARANI	Open	PM	FM200 2/13	3 : 2001-FMP	
)	<mark>1424533</mark>	11/03/2010	EL KAAFARANI	Open	PM	FM200 7/13	3 : 2001-FMP	
•	1424530	11/03/2010	EL KAAFARANI	Open	PM	FM200 6/13	3 : 2001-FMP	•
ll r	equestors	•	Open	•	PM	•	7 Days 👻	





Additional Delivery Details Enquiry

DIFC Truck Tunnel Project

Powered by Oger Dubai

1

Logout

Should you need more details regarding any delivery, you simply point the cursor to that delivery and the flyover information box will instantly appear displaying the additional information for that delivery

Tunnel ENTRY Form Last Refresh: TUESDAY 09.11.2010 13:24

3/130/1120	\$035 R063	HOSSAN	E 95071	00.00	10.00	11:53	12.22	
31331070	S033-10003-	DEVALAN	L 17265	09.00	10.00	11.55	12.22	
34268475	S0 100	PARAPURATH	E 16467	09:00	10:00	12:55		-
34475959	56-R012-	ASIDHARAN	E 85372	10:00	11:00	09:06	09:56	
34290408	10-R014-	I LIK	A 30721	10:00	11:00			
342920	S 8-R005-	AR VKOTEEL	AD 31782	10:00	11:00			
34274198	S036-R005-	MIN	K.25644	10:00	11:00	13:21		
34272302	S039-I GV-0	1-B3 ZUMA RESTA	URANTS Transpo	rt Goods: SE	A .:00	10:27	10:45	
34442967	S057-R FOOD)			:00:			
34320116	S066-R014-	ABBASI	H 32437	11:00	12:00			-
<								>
Book	ed	ab E	intry/Exit not in Tim	ie 🛛	Inquir	у		
Exite	4	7	Vehicle in Tunnel		12 Bookin	ng over 2 d	avs	

Fault Report

Overview Tasks

Tunnel Traffic (List)

Tunnel Traffic (Map)

Messages







		Messages from Oger Dubai	
Fault	Report	Date Sender Subject Message 11/00/2010 DEWA Dear DIFC Operation Team. Due to DE	delete 🔶
Overv	iew Tasks	generic_search_dash - Windows Internet Explorer	c?f1=44228&sp_obj=44240
Tunne	el Traffic (List)	From: aelkaafarani Subject: DEWA SHUTDOWN	
Tunne	el Traffic (Map)	Message: Dear DIFC Operation Team. Due to DEWA maintena will be carried out all day tomorrow, please note that n	ce of all substations that elevant PM WO's will be
Messa	By default or	Close window	
	you are prom	pted to the message center screen. If	
	you would lik	e to access the message center, n the "Messages" option To view	
	any displayed	message, simply click on it and a	€ x ⊕ 130% x
© Fal	window will p	op out displaying the whole message	



	وجيت ديسي OGER DUBAI DO GER ABU DHABI Welcome to Oger Dubai Facilities Management Portal
VITOTINE M	Sign in Username Oger Dubai Facility Management Password Optimized for a screen resolution of 1024 x 768 px. Minimal requirements MS Internet Explorer 8.0 SSL-Login
A C A	www.ogerdubai.net www.ogerabudhabi.ae
B C A	



Case Study 2 Linking BIM to CAFM



Ifc Model Based Operation and Maintenance of Buildings

lfc-mBomb

Building Lifecycle



- Disconnected Processes
- Data loss
- Time delay in re-entering data
- Extra costs



Test Case 1

South Birmingham College - Digbeth



Digbeth Ductwork



Proof of Concept



Typical Room Data Table

Roo	m Description	Location	Activity	People Occupancy	Walls	Floors	Skirting	Ceiling	MinTemp	MaxTem) AirFlov	(Ilumin	ation Working Plane	SocketArea	
G02	Restaurant	Ground	Eating	170 DayAndNight	Plastered blockwork	Non step heavy duty Safety floor	Panted softwood	óOD z óDD tile				8	200 Table	1.	44
603	Coffee Shop	Ground	Serving	4 DayAndNight	Plastered blockwork	Non step heavy duty Safety floor	Painted softwood	600 z 600 tile		21		8	200 Floor	1.	4
GOM	Kitchen	Ground	Coaking	10 DayAndNight	Plastered blockwork	Non shp heavy duty Satety floor	Vinyl coving	600 z 600 tile		13	13	20	500 Floor	1.	11
G11	Female WC	Ground	WC	4 Intermittantly	ceramic tiles	Non sho heavy duty Safety floor	Vinvi covine	600 z 600 tile		18		10	15D Floor	1.	44
G12	Male WC	Ground	WC	4 Intermittantly	ceramic tiles	Non shp heavy duty Safety floor	Vinyl coving	600 z 600 tile		18		10	15D Floor	1.	44
				number					degC	degC	l/s/p	lux		m2	
G16	Exhibition	Ground	Gathering	117 DayAndNight	Plastered blockwork	Heavy duty contract sheet vinyl	Painted softwood	600 z 600 tile	Č	21		8	25D Floor	1.	44
			Ť	, , ,											
G18	Foyer	Ground	Gathering	117 DayAndNight	Plastered blockwork	Heavy duty contract sheet viryl	MDF	600 x 600 tile		21		8	175 Floor	1.	44
G19	Reception	Ground	Officework	10 DayAndNight	Plastered blockwork	Raised access floor	Painted softwood	600 x 600 tile		21		8	50D Table	1.	44
620	Auditorium	Ground	Dancing	400 Occasional	Specialist	sprung timber	Painted softwood	acoustic suspended c	c	21	23	8	40D Floor	1.	44
621	Back stage	Ground	Storage	0 Occasional	Plastered blockwork	Heavy contract vinyl safety floor	Painted softwood	PaintedExposedSofft		21		8	300 Floor	1.	44
															1
Data	not documented														
	Equipment and format	ture and sanitary fittings													
	Fire detertion and se	ranty and rorms and en	ergenry lightin	g											_
	Doors not specified														
_	All windows identics	ł.													_
	Pressure drop in kit d	hen													
	Risks (noise/smell)														_
_	Staface specification	is singlified													_
	Sackets at one per fo	n and 2 number taken as (nspeci.44m2												_
_	WC: 10 air changes ;	perhourtaken is roughly	r 10 Malp												_
															_

- c

۵ ۲ **۲**

A C A D

000

Room Data Sheets

SpaceRequirements	Activity	Ventilatio	n Illumination	WorkingPlane	
Space requirements, typically from architectural brief	Occupancy Profile	Minimum personal : supply	air Minimum illumination	Working Plane for illumination	
pace			Ĭ	Floor	
				Table	
				Wall	
	Enumeration	Real	Real	Enumeration	
321	Daytime		8 400) Table	
23	Intermittantly	Els Edit Manu Emerilar 7	40 450	Elect	
uditorium	Occasional	Glat · O · N @	🐔 🔎 Search 🛨 Poverites 🗬 Media	🖉 🙉 🗟 👼 · 🗖 🕄 🕲 🛍 🚳 🖄	
lackstage	Occasional	Address G C:\fteVzibin\TypePred	duct_G20.aml		
Circulation	DavAndNight		Dom Data Sheet		
202	SovenEloven		Data Sheet		
202	SevenLieven	Product details			
303	SevenEleven	Product Value			
304	SevenEleven	Name G20			
519	DayAndNight	Description Audito	orium		
G22	DayAndNight	Identifier G20			
_ibrary	Daytime	Tag Audito	orium		
ounge	Daytime	Classifications			
Shopping	Daytime	Classification Locat	ion	Valu	2
Store	Occasional	Property Sets			
Teaching	Davtime	Properties for			
NC	Intermittantly	Part TypeParatect Drose	when for		
	inconnicianciy	TypeProductType Produ	ict Type		
		Code Produ Label Produ	uct Code uct Label		
		Properties for Definitio	n from IAI: Properties common to	the definition of all lfcSpace.	
		Pset_SpaceCommon	Properties for Definition from W:	Properties common to the definition of all I'cSpace	
		Reference	Reference ID for this specified by	pe in this project (e.g. type 'A-1')	
		OccupancyNumber	Maximum number of occupants fi	e presiding building code. or the designed usage of the space.	
		AirConditioning	Indication whether this space has	air conditioning provided (TRUE) or not (FALSE)	
		AirConditioningCentral	Indication whether the space has the property "AirConditioning" is	a central air conditioning provided (TRUE) or not (set to TRUE.	-ALGE). It should only be given, it
		ArtificialLighting	Indication whether this space has yes (FALSE) otherwise.	s artificial lighting required (as natural lighting would	be not sufficient. (TRUE) indicate
		DisabledAccess	Indication whether this space (in public toilet (TRUE) or not (FALS	case of e.g., a toilet) is designed to serve as a pub E). This information is often used to declare the ne	icly accessible space, e.g., for a ed for access for the disabled an
		Applet IfCXML Visualisation starte	d		

C A C

ArchiCAD



ArchiCAD



Add room requirement ArchiCAD



Adding rooms data



the built envi

TNO *lfcEngine*

e cur view Hep					
F TS 🖡 ኧ 象 🖗 👁 😫 ይ ይ	🗢 🚾 😹 🎢 👘				
(ZaKXX72m\$', ≠6, ', ', ', ≠167387, ≠167383, \$, .FLOOR,)					
#6. EcownerHistory (#5, #2, \$, NOCHANGE., \$, \$, \$, 1					
#167387. If d.ocalPlacement (#154948, #167386)					
#167383. BeProductDefinitionShape (\$, \$, (#167379, #1)					
🛄 #167379. IfcShapeRepresentation (#26, 'Body', 'Swep					
😰 🚞 #26. DieGeometricRepresentationContext ('Plan', '					
🔃 🦲 #167378. IfdExtrudedAreaSold (#167376, #1675					
#167382. IfcShepeRepresentation (#53, ", "Bounding)					
#53. DroGeometricRepresentationContext (Plan', ' #53. drogeometricRepresentationContext (#53. drogeomet			- 40		
Fig. #167381. IndependingBox (#167380, 50194.678, 102 #167380, WeChated Science / 41042, 045 - 24					
			And a second sec		
			~ 1		
	<u> </u>		1		
		A			
				and the second second	
				and the second se	
		×			
		<u> </u>	- 1 -		
				SC 4954 Silling	
			1000		
			and the second se		
			Ser.		
R	ата Тура	Dete	Scheme Name	Schema Type	<u>></u>
19	ame Type	Deta	Schema Name D'cRoot	Schema Type	<u> </u>
بي ت	ams Type Argument O String Type	Dete 'SbR4KBvH2Y8x2aC0072m\$'	Schema Name D'cRoot Globeltid	Scheme Type D'cGloballyUnique3d	<u> </u>
	ams Type JArgument 0 String Type JArgument 1 Drowneri-listory	Deta '3b84kl9×H2Y8x2ai0072m\$' #6	Scheme Name D'cRoot Globalid OwnerHistory	Scheme Type D'r Globally Unique3d D'r Owner History	<u>*</u>
제 명 단 단	ans Type Argument 0 String Type Argument 1 DrotwnerHistory Argument 2 String Type	Deta 'SbR4Kl9xH2Y8x2a/0072m\$' #6 *	Schema Name D'rRoot Globalid O'NierHistory Name	Scheme Type D'oGloballyUrique3d D'oOvnerHistory Optional Trictabel	*
대 11 11 11 11 11 11 11 11 11 11 11 11 11	ame Type Jargument O String Type Jargument 1 DrOkwan-Hatory Jargument 2 String Type Jargument 3 String Type	Deta SbR4kBvH2Y8x2a00072m¥ ≠6 •	Scheme Neme If Root Globalid OwnerHistory Name Description	Scheme Type DicGloballyUniqueId DicGlownerHistory Optional Dictabel Optional Dictabel	
व य य य	ame Type Pargument 0 String Type Pargument 1 String Type Pargument 2 String Type Pargument 3 String Type	Deta SbR4kl9×H2Y8x2a/0072m∳ ≉ • •	Scheme Name D'cRoot Globalld Owner History Name Description D'cObject	Scheme Type DrogloballyUniqueId Droomert-Skory Optional Ificiabal Optional Ificiabal	
제 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	ame Type Jacgument O String Type Jacgument I DicownenHatory Jacgument 2 String Type Jacgument 3 String Type Jacgument 4 String Type	Deta '3bR4kl9×H2Y8x2a/0072m\$' #6 • •	Scheme Name D'cRoot Globaltid OwnerHistory Name Description D'cObject Object ype	Scheme Type DiroSohari Virique3d DiroSohari History Optional Lific Label Optional Lific Label Optional Lific Label	*
य व व व व	ans Type Argument 0 String Type Argument 1 Drotwen-Hatory Argument 2 String Type Dargument 3 String Type Dargument 4 String Type	Deta SbR4439+H2Y8x2a/0072m∳ ≠6 • •	Scheme Name D'rRoot Globaltid OwnerHistory Name Description D'cObject ObjectType D'cProduct	Scheme Type DicGloballyUniqueId DicGlownerHistory Optionel Ificiabel Optionel Ificiabel Optionel Ificiabel	A
로 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ame Type Argument 0 String Type Jargument 1 Growner-Hacory Jargument 2 String Type Jargument 3 String Type Jargument 4 String Type Jargument 5 OrthogePacement	Deta 3bR4kB+H2Y8x2ak0072m\$' ≠6 • • • •	Schema Name If Gloot Globalld Owner History Name Description If object Object Type If Phroduct Object Recement	Schema Type TroBiballyUniqueId TroOvnet History Optional Ificiated Optional Ificiated Optional Ificiated Optional Ificiated Optional Ificiated	<u>*</u>
	ame Type Jacgument 0 String Type Jacgument 1 DicownerHatory Jacgument 2 String Type Jacgument 3 String Type Jacgument 4 String Type Jacgument 5 DictocePlecomeric Jacgument 6 DictocePlecomeric	Deta '3bR4KB×H2Y8x2a/0072m\$' #6 • • • • • * * *	Scheme Name I'cRoot Globaltd OwnerHistory Name Description If cObject ObjectType If Ghockut ObjectTypesentation	Scheme Type D'cGloballyUrique3d D'cOvnerHistory Optional UficLabel Optional IficLabel Optional IficLabel Optional IficDigis:IFIe Optional IficObjes:IFIe	<u> </u>

C A o u < 0

DDS Ifc Viewer





IES Apache view



O & M Doo<u>r Schedule</u>

] Die Dolt y	en Fgyorkes	Toola Halp											
el	$] \in Back \times \rightarrow$	- 🕲 🙆 🖄	🛛 🗟 Search 🔄 Favorites 🛞 Med	6 🧭 🖻) - 🎿 🕅 - 🗉	13								
	🛛 Address 📳 C:0	reportsijBuilding Fi	le_Digbeth.html											
	Google -		💌 💏 Search Web 🕞 🍏	1 Autorili	🕒 🛃 Option	rs 🥒								
	Building Fi Systems dese	ile Section f	for Doors ontext for Doors											
			System Name								System Description			
	Fabric					Building Fab	iric							
	Instance sch	edule for Doo	rs			1 mont					1			
	Name	Type Name	Operation	Depth	Thickness	Depth	Weth	From	To	height	Unique	Location	Location	Locat
	DOOR 1	DOOR Type 1	SINGLE_SWING_RIGHT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	806	B 07	0.0 mm	OuvbETPJ1EV0wjylAdiAZap	BasementModel	Digbeth	Digbeth
	DOOR 2	DOOR Type 1	SINGLE_SMING_LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	804	B 01	0.0 mm	0_KQCwr5DQhTy3_JEF7da	BasementModel	Digbeth	Digbeth
	DOOR 3	DOOR Type 2	DOUBLE_DOOR_SINGLE_SMING	120.0 mm	50.0 mm	50.0 mm	0.500 mm	804	801	0.0 mm	3hH2DZ2qb4WeGC8KCZRAJE	BasementModel	Digbeth	Digbeth
	DOOR 4	DOOR Type 1	SINGLE_SWING_LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	808	B 04a	0.0 mm	OBMGXOGRB90EWVdXI8gWgU	BasementModel	Digheth	Digbeth
	DOOR 5	DOOR Type 1	SINGLE_SWING_LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	809	808	0.0 mm	181KYise14PAeJ5x5OjdRX	BasementModel	Digheth	Digbeth
	DOOR 6	DOOR Type 1	SINGLE_SWING_LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	804	B07	0.0 mm	2q8sCE_X/3SRb8dAr43oVS	BasementModel	Digheth	Digbeth
	DOOR 7	DOOR Type 3	SINGLE_SWING_LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	810	813	0.0 mm	1 MB0y4cD9u8skyHLAxqCK	BasementModel	Digheth	Digbeth
	DOOR B	DOOR Type 3	BINGLE BWING LEFT	100.0 mm	50.0 mm	50.0 mm	1.000 mm	804	BIC	0.0 mm	11 huuliRT/8Rf2WEOM0R558	BasementModel	Diplieth	Diabeth
	DOOR 8	DOOR Type 4	SINGLE_SWING_LEFT	210.0 mm	44.0 mm	44.0 mm	1.000 mm	039	646	0.0 mm	13n6xgPtAC48KScdsrjOyf	Madel	Digbeth	Digbeth
	DOOR 10	DOOR Type 4	SINGLE_BAING_LEFT	210.0 mm	44.0 mm	44.0 mm	1.000 mm	039	046	0.0 mm	2n4ktr23n5MOJJFJoYIQcj	Ground Flaar Madel	Digbeth	Digbeth
	DOOR 11	DOOR Type 4	SINGLE_BAING_LEFT	210.0 mm	44.0 mm	44.0 mm	1.000 mm	632	G46	0.0 mm	3DJc5kcS1Aj8TLZudZbLVVG	Ground Floor Madel	Digbeth	Digbeth
	DOOR 12	DOOR Type 5	DOUBLE_DOOR_SINGLE_SWING	140.0 mm	44.0 mm	40.0 mm	0.500 mm	625	639	0.0 mm	1 ftaGERkjFd8oQp5OF8z5F	Ground Flaar Madel	Digbeth	Digbeth
	DOOR 13	DOOR Type 6	SINGLE_SWING_LEFT	140.0 mm	44.0 mm	44.0 mm	1.000 mm	628	G35	0.0 mm	al6uh1PC509BD7MGqgWSI_	Ground Flaar Madel	Digheth	Digbeth
	DOOR 14	DOOR Type 6	SINGLE_SWING_LEFT	140.0 mm	44.0 mm	44.0 mm	1.000 mm	0.28	827	0.0 mm	2v08k8vsjAhBK4NyrwFw5q	Ground Floor Model	Digbeth	Digbeth
	DOOR 15	DOOR Type 5	DOUBLE_DOOR_BINGLE_SWING	140.0 mm	44.0 mm	40.0 mm	0.500 mm	843	025	0.0 mm	3ZqDRsZ3H1AdpNpdnVRUkh	Ground Floor Model	Digbeth	Digbeth
	DOOR 16	DOOR Type 5	BINGLE_BYING_LEFT	140.0 mm	44.0 mm	44.0 mm	1.000 mm	938	925	0.0 mm	0cypNKutX5zBmCJgW_Ann4	Ground Floor Model	Digbeth	Digbeth
	DOOR 17	DOOR Type 6	SINGLE_SWING_LEFT	140.0 mm	44.0 mm	44.0 mm	1.000 mm	618	622	0.0 mm	3r2hkFivHE4øk9Tjqb8yZu	Ground Flaar Madel	Digbeth	Digbeth
	DOOR 18	DOOR Type 5	DOUBLE_DOOR_SINGLE_SWING	140.0 mm	44.0 mm	40.0 mm	0.500 mm	843	042	0.0 mm	20CQmIRM9DjfESDY0FU6Uj	Ground Floor Madel	Digbeth	Digbeth
	DOOR 19	DOOR Type 5	DOUBLE_DOOR_SINGLE_SWING	210.0 mm	44.0 mm	40.0 mm	0.500 mm	017	820	0.0 mm	34/EMNUbT8DeXkVtGw1eQ	Ground Flaar Madel	Digbeth	Digbeth
		DODR DOD 5	DOLLELE DOOR SINGLE SAINS	210.0 mm	44.0 mm	40.0 mm	0.500 mm	G14	620	0.0 mm	0qJ5Mbu/P1nPf6cRCYCuHJ	Ground Floor Madel	Digbeth	Digbeth
	DOOR 20	DOOK TYPES	BOORE_BOOK_BINDLE_BINNO			L		<u> </u>	<u> </u>	L		Auger 181		-
Maximo

- Drill down to component level

Work Rockests Driktown Location: FCDATA Equipment: Equipment System: Statue: Statue: - 01NROTQEHB2FS0XUDPOVRL: AIRTERMINAL Grile 2 System: - 01F2YHWF6LU888BJTJDX: AIRTERMINAL Grile 10 Statue: - 01F2YHWF6LU888BJTJDX: AIRTERMINAL Grile 10 Statue: - 11LDHG_0FDH-M70ETB2VB3FAUROPCAUR48: AIRTERMINAL Grile 11 Statue: - 11F15D57D9BBADP00006485: AIRTERMINAL Grile 11 Statue: - 11VF15D57D3DPJ3PJ39M58A: AIRTERMINAL Grile 12 Statue: - 10F170D2F3986ADP00006485: AIRTERMINAL Grile	v= back • ⇒ • 🕲 😰 🖆 🥨 Search	marcevortes vyrmeda 👔 Lor og mir I	ar-
Locations Equipment Equipment: FCDATA System: Status: Status: Status: Status: Status: Status: Status: Status: Status: Status: Status:			(* G0
Location: Equiment Location: FCDATA FCDATA Equipment: FCDATA FCDATA System: FCDATA FCDATA System: FCDATA FCDATA System: FCDATA FCDATA System: FCDATA FCDATA FCDATA FCDATA FCDATA System: FCDATA FCDATA FCDATA FCDATA FCDATA			
Location: FCDATA FCDATA Equipment: No equipment found at this location. System: SpatialSinuture - - - - System: SpatialSinuture - - <tr< td=""><td>Locations</td><td>Equipment</td><td></td></tr<>	Locations	Equipment	
Lboarder: IPCLATA IPCLATA IPCLATA Equipment: IPCLATA IPCLATA IPCLATA System: IPCLATA IPCLATA IPCLATA IPCLATA			
System: - 3IPWYG6FV4SRKQT533H2D0: SPACE 620 Auditorium - 0INRDTQEHB2PSQYJDPDVRL: AIRTERNINAL Grille 2 - 0INRDTQEHB2PSQYJDPDVRL: AIRTERNINAL Grille 2 - 00FEZYHMF5LU88IBJTJDXX: AIRTERNINAL Grille 8 - 00FEZYHMF5LU88IBJTJDXX: AIRTERNINAL Grille 10 - 00FEZYHMF5LU88IBJTJDXX: AIRTERNINAL Grille 8 - 00FEZYHMF5LU88IBJTJDXX: AIRTERNINAL Grille 10 - 00FEZYHMF5LU88IBJTJDXX: AIRTERNINAL Grille 11 Select : to show chiczen. Select : to show chiczen. Select : to return a bostion - 2FPSC14H10IPDZLUBBQGS9: AIRTERNINAL Grille 1 - 2FPSC14H10IPDZLUBBQGS9: AIRTERNINAL Grille 12 - 2ZUJKJJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 12 - 2ZUJKJJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 14 - 2ZUJKJJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 14 - 2ZUJKJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 14 - 2ZUJKJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 14 - 2ZUJKJBRX2BOEUSQPXWAOH: AIRTERNINAL Grille 14 - 2ZUJKJBRY		No equipment found at this location	
System System	Sustan: SpatialStructure		
 OINRDTQEHB2PSQYJDPDVRL: AIRTERMINAL Grille 2 OQFEZYHMF5LU88/BJTJDVX: AIRTERMINAL Grille 3 OUTWGWG82ZF0XX3DGERFIEL: AIRTERMINAL Grille 10 OTWGWG82ZF0XX3DGERFIEL: AIRTERMINAL Grille 10 I HLDHG_OFDHHV70ET2QWSI: AIRTERMINAL Grille 11 I HLDHG_OFDHHV70ET2QWSI: AIRTERMINAL Grille 11 I HLDHG_OFDHHV70ET2QWSI: AIRTERMINAL Grille 11 I HLDHG_OFDHHV70ET2QWSI: AIRTERMINAL Grille 5 I I I I I I I I I I I I I I I I I I I	aystem. apatalandure	📃 🔲 - 3IPNYGGFV48RKQT593H2D0: SPACE G20 Auditorium	
 OQFEZYHMF5LU89IBJTJDVX: AIRTERMINAL Grille 8 OTWGW08ZZFOXK3DGERFIEL: AIRTERMINAL Grille 10 Pac Show Path to Top View Work Orders & PMs Highlight a location to view its details. Select		🔄 🔜 – OINRDTQEHB2PSQYJDPDVRL: AIRTERMINAL Grille 2	
 OTWGWG8ZZFOXK3DGERFI6L: AIRTERMINAL Grille 10 Show Path to Top IHLDHG_0FDHHV7OET2QWSI: AIRTERMINAL Grille 4 IPBPF_UMX1EPBLRLZYKGND: AIRTERMINAL Grille 9 IUF15D\$7D9BBADPOQOGK6\$: AIRTERMINAL Grille 11 IUF15D\$7D9BBADPOQOGK6\$: AIRTERMINAL Grille 11 IWKQ65T7D3DPJ97H5M0I\$A: AIRTERMINAL Grille 5 IUF15D\$7D9BBADPOQOGK6\$: AIRTERMINAL Grille 5 IUF15D\$7D9BBADPOQOGK6\$: AIRTERMINAL Grille 5 IUF15D\$7D3DPJ97H5M0I\$A: AIRTERMINAL Grille 7 IUF15D\$7D3DPJ97H5M0I\$A: AIRTERMINAL Grille 7 IUF15D\$7D3DPJ87H5M0I\$A: AIRTERMINAL Grille 12 IUF15D\$7D3DPJ87H5M0I\$A: AIRTERMINAL Grille 12 IUF15D\$7D3DPJ87H5M0I\$A: AIRTERMINAL Grille 14 IUF15D\$7D3DPJ89J80VYENRZD\$X00: SPACE 028 Commercial IUF15D\$7D3DPJ89J80VYERRZD\$X00: SPACE 044 Meta Totle1 debw 		🖸 🔲 - OQFEZYHMF5LU88IBJTJDVX: AIRTERNINAL Grille B	
Pac Show Path to Top View Work Orders & PMs Image: Fightight a location to view to details. Select Image: To bide children. Image: Fightight a location. Select Image: To return a location. Image: Fightight a location. Select Image: To return a location. Image: Fightight a location. Select Image: To return a location. Image: Fightight a location. Select Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fightight a location. Image: To return a location. Image: Fight a location. <td></td> <td>🖂 🔲 - 0TWGWG8ZZFOXK3DGERFI6L: AIRTERMINAL Grille 10</td> <td></td>		🖂 🔲 - 0TWGWG8ZZFOXK3DGERFI6L: AIRTERMINAL Grille 10	
View Work Orders & PMs 1PBPF_UMX1 EPBLRLZYKGND: AIRTERMINAL Grille 9 1UF15D\$7D9BBADPOQOGK6\$: AIRTERMINAL Grille 11 1UKQ55T7D3DPJB7H5N0I\$A: AIRTERMINAL Grille 5 Select to hide children. 2FP\$C14H10IPDZLJBB0GS9: AIRTERMINAL Grille 7 2Select to return a location. 2SP5MG0MX4PGRSB080XEFT: AIRTERMINAL Grille 3 2T2UMN03R18UM4SZ7GKF13: AIRTERMINAL Grille 12 2Z9LZCVI1740FX00Q0PJS0: AIRTERMINAL Grille 14 2Z29LZCVI1740FX00Q0PJS0: AIRTERMINAL Grille 14 343DERJDRFJWXGNGY2LIOR: AIRTERMINAL Grille 13 34XDERJDRFJWXGNGY2LIOR: AIRTERMINAL Grille 13 34XDERJDRFJWXGNGY2LIOR: AIRTERMINAL Grille 13 34XDERJDRFJWXGNGY2LIOR: AIRTERMINAL Grille 13 30XEDTT00471800000FJC9: 9PACE 044 Mala Totlat John 	🖳 Show Path to Top	🖂 🔲 - 1HLDHG_0FDHHV70ET2QWSI: AIRTERMINAL Grille 4	
Hghlight a location to view to details. Select II: to show children. Select II: to inde children. Select II: to return a location. Select II: to return a location. IIIIII: To return a location. IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	View Work Orders & PMs	Image:	
Select :: to show children. Select :: to hide children. Select :: to hide children. Select :: to return a location. :: - 2FP\$C14H10IPDZLUBB0GS9: AIRTERMINAL Grille 7 Select :: to return a location. :: - 2SP5MGOMX4PGRSB060XEFT: AIRTERMINAL Grille 3 :: - 2T2UMN03R18UM4SZ7GKF13: AIRTERMINAL Grille 12 :: - 2Z9LZCVI1740FX0000PJS0: AIRTERMINAL Grille 14 :: - 2ZJK3J&RX2BOEUSQFXWAQH: AIRTERMINAL Grille 14 :: - 34\$DERJDRFJWKGNGY2LIOR: AIRTERMINAL Grille 16 :: - 3FL4M0MYZ1NWQ_ZH14Y7R6: AIRTERMINAL Grille 13 :: - 30XE0TT0904T69WDCM95ZC9: 9PACE 044 Meta Total chilw	Highlight a location to view its datails	🔄 🔜 - 10F15D\$7D9BBADP0Q0GK6\$: AIRTERMINAL Grille 11	
Select to hide children. Select to return a location. Select 2SP5NGOMX4PGRSB060XEFT: AIRTERNINAL Grille 12 Select 2ZJK3J\$RX2BOEUSQF2VA00PJSD: AIRTERNINAL Grille 14 Select 2ZJK3J\$RX2BOEUSQF2WAQH: AIRTERNINAL Grille 14 Select 34\$DERJDRFJWXGN0Y2LIOR: AIRTERNINAL Grille 6 Select 3FL4MOMYZ1NWG_ZH14Y7R6: AIRTERNINAL Grille 13 Select 307E0TT09ATERWDCMSETCS: SPACE 044 Meta Tolle1 obby	Select III to show children	🔄 🔜 - 1WKQ55T7D3DPJB7H5M0I\$A : AIRTERMINAL Grille 5	
Select to return a location. Image: Select - 2SP5MGOMX4PGRSB080XEFT : AIRTERNINAL Grille 3 Image: Select - 2T2UMN03R18UM4SZ76KF13 : AIRTERNINAL Grille 12 Image: Select - 2T2UMN03R18UM4SZ76KF13 : AIRTERNINAL Grille 12 Image: Select - 2T2UMN03R18UM4SZ76KF13 : AIRTERNINAL Grille 12 Image: Select - 2T2UMN03R18UM4SZ76KF13 : AIRTERNINAL Grille 14 Image: Select - 2T2UK3J\$RX280EUSQF2WAQH : AIRTERNINAL Grille 14 Image: Select - 2T2UK3J\$RX280EUSQF2WAQH : AIRTERNINAL Grille 1 Image: Select - 34\$DERJDRFJWX6N6Y2LIOR : AIRTERNINAL Grille 6 Image: Select - 3FL4M6IMYZ1NW9_ZH14Y7R6 : AIRTERNINAL Grille 13 Image: Select - 307E0TT09AT89WDCM9E7C9 : 9PACE 044 Meta Totlet Lobby	Select 🔄 to hide children.	Image: Participation of the second state of	
	Select 📕 to return a location.	🔄 📃 - 2SP5NGOMX4PGRSB080XEFT : AIRTERMINAL Grille 3	
- 2Z9LZCVI174QEXQQQOPJSQ: AIRTERMINAL Grille 14 - 2ZJK3J\$RX2BOEUSQEXWAQH: AIRTERMINAL Grille 1 - 34\$DERJDRFJWXGNGY2LIOR: AIRTERMINAL Grille 6 - 3FL4MGMYZ1NWQ_ZH14Y7RG: AIRTERMINAL Grille 13 - 3FL4MGMYZ1NWQ_ZH14Y7RG: SPACE 028 Commercial - 307E0TT09AT89WDCM9EZC9: 9PACE 044 Meta Totlet Lobby		🔄 📃 - 2T2UMNO3R18UM4SZ7GKF13: AIRTERMINAL Grille 12	
- 2ZJK3J\$RX2BOEUSQEXWAQH : AIRTERNINAL Grille 1 - 34\$DERJDRFJWKGNGY2LIOR : AIRTERNINAL Grille 6 - 3FL4MGMYZ1NWG_ZH14Y7RG : AIRTERMINAL Grille 13 - 3FL4MGMYZ1NWG_ZH14Y7RG : SPACE 028 Commercial - 30XE0TT09ATE9WDCM9EZC9 : 9PACE 044 Meta Total Lobby		🔄 🔲 - 2Z9LZCVI1740FX0000PJS0: AIRTERMINAL Grille 14	
		III = - 2ZJK3J\$RX2BOEUSQEXWAQH : AIRTERMINAL Grille 1	
- 3FL4MGMYZ1NWG_ZH14Y7R6: AIRTERMINAL Grille 13 - 3KNRX\$YB99J8UYERRZDX30: SPACE 028 Commercial - 307E0TT09AT89WDCM9E7C9: 9PACE 044 Male Toilet Lobby		Image: A standard and and a standard and a stand	
- 3KNRX\$YE99J8UYERRZDX30: SPACE 028 Commercial		Image: Second	
		State - 3KNRX\$YB99J8UYERRZDX30: SPACE 028 Commercial	-
		- 3Q7F0TT09AT88WDCM8F7C8: SPACE 044 Male Toilet Lobby	
Displayed Fields Location : Description		Displayed neids Location: Description	
Cancel		Cano	el 📄

Benefits

Original Objective

- To populate a Facilities Management system with building services information
- Reduce the time to do this

Additional benefits

- Capturing furniture and assets
- Formalising room data
- Interactive design of ductwork
- Transfer of models into environmental design systems
- Change in building regulations
- Historical timescales for building maintenance (standards)

Business Benefit - Owners/ Users



C A U

Business Benefits - FM Operators



C A D

1

Business Benefits - Designers



Business Benefits - Contractors



78

Business Benefits - *Suppliers*



Business Benefits - Software Vendors



Business Benefits

- Future

- The use of object oriented model servers
 - Enabling users to interact with huge building information models
 - Maintaining the integrity of disparate model information
- Links to document repositories
- New opportunities
 - Building models automatically checked against regulations
 - Route planning:
 - Where is an asset
 - How do I get to it
 - What is affected in getting to it
 - Optimised configuration of BMS systems
- Easy links to software supporting other disciplines
 - e.g. Hospital space planning

FaMe[®]

FaMe Real Estate Lifecycle Software

»One Solution for all Tasks«



The FaMe System

- CRES/CAFM-Software with almost 20 years of practical experience
- 100% Web-technology based with "Zero-Client Installation"
- Multinational network for remote and on-site support
- Customers in major commerical organizations, housing and the construction industry

FaMe Overview



Real Estate



Real Estate

Units on Sale Lease

FaMe Immobilienmanagement GmbH

Here you see an overview of the objecst for sale. You can select an object from the list. By clicking on the printer icon you can print the object details. Using the page layout icon you can see the details on the screen. With the email icon you can send an email and a FaMe contact person will contact you as soon as possible.

ð 🗈

Condominium View Sentosa

Overview o	f Rental Uni	ts on Offer
------------	--------------	-------------

		Lease	e Unit	Street / No.	Zip / Location	Object Type	Free from	Lease Price \$	Area m²	Turnove	г\$
	<i>4</i> 🖻	AD-Pearl-03	Dubai Mal	I 2226 AI Sufouth Road	2569 Dubai	Retail Outlet	01.08.2011	7269	25600	450	00
	<i>8</i> 🗎	237 Res	taurant	Al Khor Street 3	20-01 Al Mamzar	Restaurants	01.08.2011	4550	2360		
	5 D	Here you se layout icon y	FaMe Immobilienmanagement GmbH Here you see an overview of the objecst for sale. You can select an object from the list. By clicking on the printer icon you can print the object details. Using the page layout icon you can see the details on the screen. With the email icon you can send an email and a FaMe contact person will contact you as soon as possible.								
HOBBIES	<i>a</i> 1		Overview Property								
201001003000000000000000000000000000000				Asset	Building	Street / No.	Zip / Location	Object Type	Free from	Lease Price \$	Area
			<i>4</i> D	Condominium View Sentosa	01	Bukit Timah Road 1	#20-01	Condominium Building			3
			8 1	Condominium View Sentosa	02	Bukit Timah Road 2	#20-01	Condominium Building			3
			8 D	Condominium View Sentosa	03	Bukit Timah Road 3	#20-01	Condominium Building			3
			<i>8</i> 🗎	Condominium View Sentosa	04	Bukit Timah Road 4	#20-01	Condominium Building			3

05

Bukit Timah Road

5

#20-01

Condominium

Building

325

Contracts Management

The staus fo	FaMe Immobilienmanagement GmbH The staus for the rental contracts are shown in the list below.						
	Status Rental Units						
	Lease Unit	Street / No.	Zip / Location	Object Type	Begin/End	Lease Price \$	Area
8 🖻 🖕	AirportCH-3007-1-A Check-in counter A	Airport Lane 1	98896 Singapore		01.01.2010 31.12.2010		
8 🗎	AirportCH-3007-1-A Check-in counter A	Airport Lane 1	98896 Singapore		01.01.2001 31.12.2009		
8)	AirportCH-3007-1-B Check-in counter B	Airport Lane 1	98896 Singapore		01.01.2004 31.12.2010		
<i>a</i> 1	AirportCH-3007-1-C Check-in counter C	Airport Lane 1	98896 Singapore		01.01.2004 31.12.2010		
4	AirportCH-3007-1-D Check-in counter D	Airport Lane 1	98896 Singapore		01.01.2004 31.12.2010		
4 1	AirportCH-3007-1-E Check-in counter E	Airport Lane 1	98896 Singapore		01.01.2004 31.12.2010		
4 1	AirportCH-3007-1-F Check-in counter F	Airport Lane 1	98896 Singapore		01.01.2004 31.12.2010		
	CON-1000-App01 Apartment 01	Bukit Timah Road 1	20-01 North Singapore		01.06.2008 01.06.2009		
<i>5</i> 1	CON-1090-App01 Apartment 01	Bukit Timah Road	20-01 North Singapore		01.06.2008 31.12.2009		

Status contracts next 6 month

A C A

Facility Management / Corrective Maintenance



Facility Management / Preventive Maintenance



ERP Invoices / General Ledger

Invoice No.	S Booking Date 19 Booked	🕀 🛄 A01 Bank
Invoice No. (External)	Date of Invoice 🗓	CO1 Air Conditioning System
	Content (short)	CO2 Building Works CO3 Cleaning & Refuse Di
		E CO4 Condominium Events
Status C open C Pa	t Payment 🛇 Account Payment 🔘 completed	E C05 Electrical Installation &
Order No. 🧱 🥔	Payment Method 📰 🥔	E _ C06 Fire Protection & Dec
Company /Supplier 🗐 🥔	INT > Accounting > Outgoing Invoice > Outgoing Invoice	C07 Generator System
Client No.	Account no 070125409412	Pe + C08 Insurance
Telephone Dial up		E C10 Licenses
		E C11 Lift System
	Reference to Company	E C12 Pest Control
Water Invoic	Company 📳 🥔 📃 🦷	E C13 Pumps System
Heat / Gas Ir	vo Customer Account	C14 Refuse Compactor S
Vehicle	Name 🔢 🥔	E C15 Security Services
Net	area code	E C To Security System
Sales Tax	Company memo	E C18 Swimming Pool & Wa
Discount %		C19 Other Fees
	Reference to offer	E C20 Public Utilities
Approved by	Order-No. 25409412	C21 General Expenses
Email	Correspondence	E C22 Bank Charges
Approved on 19		C23 Taxation
L Comment L	Discount \$ 0.00 FUR	R01 Revenues/Fund
	Discount % 0.00	Departments Chart of accoun
	Color Tax W	
		Payment Due Date 19
	Account No. 📳 🥢 192092500 🏾 !	Routing No. [29040090
	Credit Institut Commerzbank	Company FaMe-Immobilien
		Term of Payment 📳 🥔

CRM Management / Sales Agent



Client Condominium Management



CAD/BIM Integration



CAD/BIM Integration Hatching



FaMe/BIM Operation Management



B C A A C A D E N

Consistent Code for Construction and Operation



FaMe Integration CAD Systems / IFC



Open CAD/BIM



Link CAD/ADT Database



Space Management Connection Database CAD





Asset Tracking Office Equipment



Asset Tracking using RFID technology



Asset Control Technical Equipment





Report: PM Maintenance System



Report: Lease Management



FaMe Facility Management and BMS (Building Management System) Integration

Goals FaMe Product:

Comprehensive Facility Operation System
Comprehensive Property Management System
Comprehensive Life Cycle Management System

Goals interface FaMe/BMS:

- •Uniform handling System for different BMS Systems
- •Common Database for all Properties

A C A D E

- •Central Energy Consume Reading and Management
- •Central Incident Management. Make it efficient
- •Uninterrupted Lifecycle Management with BMS Online Data


System Approach BMS Interface



Function Overview FaMe/BMS Integration



Integration BMS





Unique FaMe Cockpit Online Control

A C A U





Long Term Cost Analyse and Reports

Messpunkt EU-GB Messstelle 30195	ER-FRD-02-037-WEM 145	S023700-EE-W	
Kostenstelle Beschreibung	0000000346 Kommuniktechnik Telekomanlagen		
Datum C 01.01.2012 02.01.2012 03.01.2012 04.01.2012 05.01.2012 06.01.2012	Delta Kostenstelle 2,14 4,22 3,71 3,94 4,21 3,18	Verbrauch Kostenstelle Einheit 30,32 kWh 104,22 kWh 201,36 kWh 291,26 kWh 389,78 kWh 479,37 kWh	
07.01.2012 08.01.2012 09.01.2012	2,82 2,66 4,99		Energieverbrauch pro Kostenstelle je Messpunkt
10.01.2012 11.01.2012 12.01.2012	5,14 4,96	Hermite Betrick and Instantial, HER-Anison (7), 2023	
13.01.2012 14.01.2012 15.01.2012 16.01.2012	4,93 3,03 3,16 4,91	Kommunk-Indexine Telefoner Magner (J. 2015) Modellinnitis angost United part (J. 2015) United part Protocol United part Protocol United part Protocol United part (J. 2015) Verso gang Seldmink Verso gang Seldmink	Methodas & Hit Methodas & Hittan Bakarg (11.025)
17.01.2012 18.01.2012 19.01.2012 20.01.2012	4,89 4,53 4,57 4,08	Konnueitationstechnik, Netzeenk(10.82%)	
21.01.2012 22.01.2012 23.01.2012	2,36 2,16 4,32	Parg-Writ-Badedvek Hach-ITef, Brandshetz, Wek & Biro (11.37X)	
24.01.2012 25.01.2012 26.01.2012	4,29 4,16 4,62	Eebadelechnik Uhrikaanschnin new Oobladereinigung († 1.3492	Bittot, Enryter. Bittot, Janger. Bittotel, 4 Enryterrorg, Lettern (19.225.)
27.01.2012	4,36	-	

FAME

Typical Project Schedule (overview)



FAME

Video





Tutorial Assignment