INDUSTRY INSIGHT

buildingSMART International

What do Facility Managers need from BIM?

Case 5: Business Catering and openBIM

A perspective from the Building Room

CONTENTS

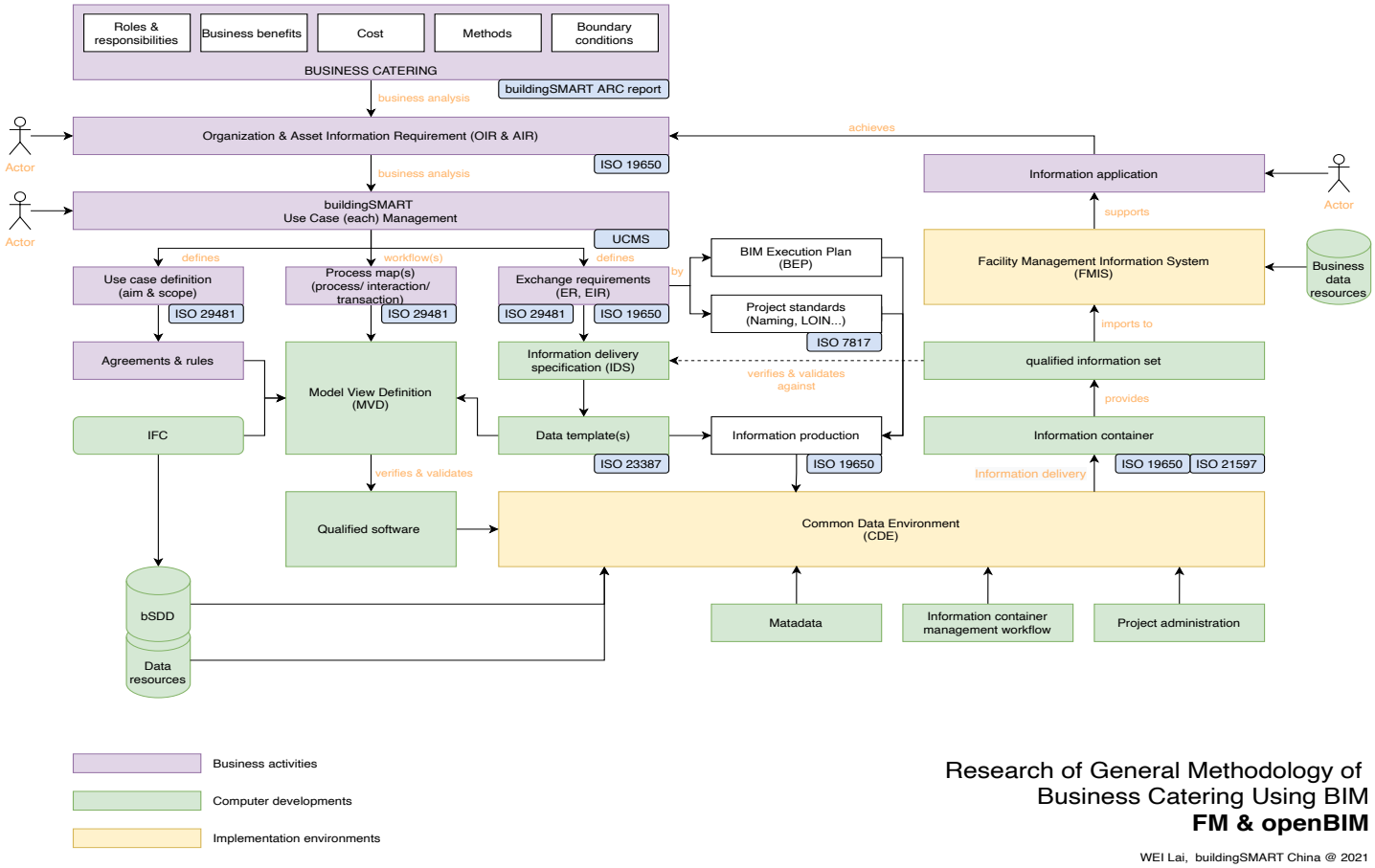
1. Design of a kitchen for business catering

The main problem that business catering managers experience when managing equipment breakdowns is the unavailability to produce. It means the programmed menu can't be delivered and the procured fresh ingredients can't be used. In a hospital this causes a negative influence on the health and hygiene of patients. In a commercial restaurant or business catering facility run by Starbucks or Sodexo this also damages turnover and customer experience. Therefore, information about the specific kitchen and restaurant equipment coming from the design phase is crucial when delivering food to people. To know and properly register the properties of kitchen equipment as well as having easy access to the asset information reduces maintenance time and as a result brings value to the objectives of facility management and business catering and brings down failure costs.

This paper signals the need for a methodology of maintenance work and in general of services based on a good management of the information and updating of data of the existing equipment and assets. In business catering these assets have a high rotation and high commercial value. Maintenance on equipment has a direct effect on the delivery of food. See enclosure 1 for an example list of workorders at Starbucks. A clear BIM-based golden thread from FMIR protocol defined before design, all the way to FMCDE is required for allowing the business catering to deliver healthy food and hygienic food services to people. The openBIM professional foodservices design process designed by the Foodservice Consultants Society International (FCSI) and presented at www.ifsebim.org forms the starting point for applying openBIM when designing kitchens for business catering. If used timely and properly the FCSI-methodology will help decrease lifecycle costs as well as failure costs due to inefficient maintenance processes.

Because of the impact and direct applicability of the FCSI-methodology in a wide variety of sectors, the workgroup decided to focus on this subject. In the world of facility management business catering is one of the main services. Its global market size is huge. The timely delivery of healthy food and hygienic food services to can be improved by using openBIM for kitchen equipment information management right from the design phase. The workgroup would like to emphasize that professional management of these assets is as vital to facility management as any other asset.

The following graphic shows how the Business Catering requirements could be integrated in the openBIM and buildingSMART International processes for the design, construction, maintenance and use of a food kitchen.



2. Special focus on bSDD

The purpose of classification is to structure the data in such a way that different actors can understand it and use it appropriately. In BIM, classification allows people, software and machines to share and use information efficiently and accurately.

The importance of classification is growing as teams for building projects get more complex and international, and as projects themselves generate more and more data which is then relied on to automate processes, make better decisions and operate devices.

Several classification systems have been created for different types of BIM data and for different geographic areas: UNICLASS; OmniClass, etc. For all these reasons it is fundamental to classify the elements belonging to the business catering in corporate offices.

A very important classification has been carried out by IFSE (International Food Service Equipment BIM Standard), whose objective is to provide an open, international platform for those with expert/industry specific knowledge to come together to develop a common platform for the exchange of BIM data and information relating to the design of foodservice kitchens.

Table 1 below shows the classification proposed by IFSE that is very specific and ready to be largely adopted as a standard.

Table 1 – IFSE Classification for Catering Equipment

1. Kitchen machinery

1.1	Planetary mixers
1.2	Multipurpose /Universal kitchen appliances
1.3	Beam mixer
1.4	Vegetable cutting machines
1.5	Vegetable peelers
1.6	Drive unit for attachments
1.7	Slicing machines
1.8	Vegetable washer and spin dryer
1.9	Tin openers
1.10	Band saw machines
1.11	Food depositors
1.12	Cutters
1.13	Blenders
1.14	Mincers
1.15	Coffee mills / coffee grinders
1.16	Slow juicer
1.17	Juicer
1.18	Vacuum device

2. Catering equipment

2.1	Cooking Zone
2.2	Microwave / Microwave Combination Oven
2.3	Fryer
2.4	Warming plates and griddles
2.5	Commercial grillers
2.6	Contact grills
2.7	Multifunctional Cooking device
2.8	Combi Steamer
2.9	Pasta Cooker
2.10	Bain Marie
2.11	Cooking Kettle / Pressure Cooking Kettle
2.12	Frying and deep frying machines
2.13	In-store baking ovens
2.14	Multiple deck ovens
2.15	Smoker ovens
2.16	Convection ovens
2.17	Sous-vide water baths
2.18	Frying and Grilling Appliances
2.19	Pasteurizers

3. Commercial coffee machines

3.1	Fully automatic machines
3.2	Filter machines
3.3	Portafilter machines

4. Cooling and counter technology

5. Ware washing technology

6. Aeration and ventilation system

7. Conveying solutions

8. Disposal systems

9. Components and accessories

After object classification, it is very important to define the minimum set of properties that each object must have in order to be used for facility management.

IFSE has also developed a set of properties for each classified object that can be used as a standard.

Each property includes:

- Guid (key)
- A name in several languages (ENG, ESP, PORT, FRA, DEU, ITA)
- A description in several languages (ENG, ESP, PORT, FRA, DEU, ITA)
- A group name
- A sub-group name
- Unit of measurement.

In order to use all this data and information, it would be very important to create a buildingSMART Data Dictionary. The buildingSMART Data Dictionary (bSDD) is an online service that hosts classifications and their properties, allowed values, units, and translations. The bSDD enables linking between all content within the database. It provides a standardized workflow to ensure data quality and consistency of information. See Appendix 2 below for an example of an inventory list currently used by Starbucks.

BIM modelers use bSDD to have easy and efficient access to all types of standards to enrich their models. BIM Managers use bSDD to verify the validity of BIM data. Advanced users use bSDD content to verify compliance, automatically find manufacturers' products, extend IFC, create information delivery specifications (IDS), and more.

The last step is to associate the correct IFC class for each classified object based on the IFC version 4.0.

3. Other applications of openBIM in business catering

Besides the obvious use when designing a kitchen, openBIM and the FCSI-methodology can also deliver value to other relevant subjects in business catering.

First, including the kitchen equipment in the digital ecosystem of buildings right from the initial design allows for creating the menu-supply-chain. Equipment needed for delivering a specific menu to the occupiers of a building (patients, guest, clients, employees, students, etc.) forms part of the total smart building infrastructure. It allows for built-in flexibility when menus or populations change. By digitally connecting the various outlets on a campus or in a hospital, food logistics can become more efficient and procurement and maintenance can become more predictive.

Secondly, presenting a digital twin of the kitchen, restaurants, coffee corners and other outlets can help build a community around healthy and sustainable food, can help people find and choose ingredients matching their needs and increase the customer experience. Visualization and branding of food services using openBIM-based design can be more appealing and allow for better nudging. Especially at corporate offices, co-working locations and at universities.

Thirdly, including food equipment in a BIM for the design and management of business catering can have a significant impact on operational processes and subjects influencing business results in the following areas:

- Using a reliable and up to date inventory list (example list from STBX (Starbucks) Alexandrium).

- Producing complete maintenance work orders (example list from Starbucks).
- Increased quality of information needed to make a bid on delivering the actual service.
- Requiring an architect to design physical space reflecting the needs of a menu.
- Measuring and managing occupancy and produce required in restaurants, coffee corners and other outlets.
- Managing and improving the efficiency of the production of food and equipment usage.
- Measure and manage the results of a WELL-based business catering design.
- Detection and management of energy-use and safety of equipment.
- Collect more detailed information on specific business opportunities within the restaurant and kitchen. Especially regarding the 'Front of house' strategy, specific counters, espresso bars, salad bars and the use of cooling, lighting, temperature and airflows.
- Collecting data on potentially clean and dirty zones based on the (building) materials used and possible routing of trash.
- Managing the efficiency of m2's, seats, routing and logistics. Especially regarding close-by facilities like toilets, meeting rooms and parking.
- Asset cost management and procurement of equipment (sellers, providers, instalment, contractual data, public law and regulations).

For more information, position papers, parameter dictionaries, guidelines, workflows, governance and other technical documents we kindly ask you to visit and download your own documents at www.ifsebim.org or visit Homepage - Foodservice Consultants Society International (fcsi.org) for more details and your local contact.

4. Application by FM from wider generic maintenance perspectives

FM of catering services that maintain restaurants, office building kitchens, or public building kitchens can benefit from tools and workflows that provide easier maintenance and reduce operational costs.

One way to reduce maintenance effort is to analyze the precise moment the cleaning staff must handle the kitchen area. In Many office buildings and restaurants, the cleaning staff arrives periodically to clean the kitchen to avoid mess and unhygienic situations. When doing so, the cleaning staff might be sent to the kitchen area while it was scarcely utilized and might not be sent to the kitchen after a spontaneous event of high utilization and clutter. As a result, the periodic approach costs valuable time for the cleaning staff and doesn't necessarily enable a hygienic environment. Therefore, it can be beneficial to have a tool or workflow that allows cleaning services on demand. On-demand cleaning services can be enabled by providing FM with real-time data about the occupation in the kitchen or real-time data about equipment use.

Another way to reduce maintenance efforts in the kitchen area is to provide real-time data and location data of its equipment. Kitchens in restaurants and office buildings contain a vast amount of equipment that requires maintenance regularly and according to manufacturer requirements. When not handled correctly, an equipment failure might lead to a decrease in life span or even replacements. Additionally, malfunctioning equipment might cause an unhygienic environment and discomfort for kitchen users. When real-time data of equipment and its location is available for FMs to view and use, they can react to the failure message on time and avoid unnecessary delays.

FMs can also reduce operational costs by obtaining more data from equipment installed in the kitchen and linking it with the equipment's location. In many buildings, the kitchen area has the highest density of installed electrical equipment; consequently, it generates a significant share of the energy consumption in a building. It is for this reason beneficial for FMs, to obtain a precise and transparent analysis of operational costs associated with that area. Such analysis often requires tracking near real-time energy generation data and monitoring self-consumption and respective storage. Together with the system's location, early corrective action to prevent budget overrun and inefficiencies are enabled. Additionally, associated CO2 emissions and cost on global level can be tracked.

5. Integrating dynamic data and BIM data for better FM operations

Integrating a link to dynamic data in the BIM process can help FM companies obtain an advanced analysis of their assets and reduce operational expenses. It can enable cleaning services in demand, a better alarm system for equipment maintenance, transparent analysis of energy consumption, and a better understanding of space utilization.

The benefits of combining dynamic data with BIM data are immense, but the actual integration of BIM data with the BMS dynamic data is a complex engineering task. To accomplish this task, it is best to involve the system integration suppliers from the commissioning phase in the BIM process, preferably already in the early stages of the building design. By doing so, the fire safety, personal safety, and comfort of employees and visitors are improved, and the daily operational tasks of FM are modernized.

Leveraging the power of dynamic data and BIM data in greenfield buildings:

To achieve the best system utilization, the FM and the system integration provider must be involved in the early stages of the design and conception stage of the building. Together with the asset owner, they should agree on the relevant use cases of the building automation systems and ensure that the relevant data is listed in the exchange information requirements and that the system integration provider is involved in the BIM process.

To leverage the power of dynamic data, it is necessary to link between the static 3D model and the corresponding BMS data points. The data points delivering dynamic data about a building are related to the electrical equipment of BMS systems or to IoT devices. These are often connected to the mechanical and electrical systems of the building (air conditioning, heating and ventilation systems, lighting systems, etc.), helping to monitor and enhance their processes based on desired use cases. Therefore, it is advised that the use cases for the utilisation of automation systems are decided upon upfront, namely in the conception/ design stage of the building. Moreover, the task of combining BIM data and dynamic data should be formalized in the exchange information requirements.

In addition, it is essential to ensure the use of a common data environment (CDE) in the operational phase. A CDE is a tool to manage models, alpha-numerical data, and all documentation of a building project. It helps to avoid duplication of data and facilitate a more transparent collaboration between different project participants. After the handover process and during operation, the BIM models and dynamic data are still collected and maintained, even if less frequently than before. It is best to facilitate the change processes in an adequate information management system, namely CDE, that can track the necessary files and corresponding metadata.

Lastly, enhancing openBIM standards and processes with adequate BMS referencing can help to ensure better information exchange and appropriate mapping between data points and locations. By enhancing IFC terminology, creating a corresponding MVD, and focusing on use case-based communication, facility managers can avoid studying complex engineering knowledge and rely on the information requirements to fulfil the desired use cases.

Leveraging the power of dynamic data and BIM data in brownfield buildings:

A significant part of the information about the building structure and BMS systems is lost in the handover process or remains in the hand of the system integration company assigned to the job. Nevertheless, integrating the dynamic data and BIM data in brownfield buildings can be done by re-engineering and digitizing the managed assets. Digitizing the built asset can be done, for example, by scanning the built asset and assigning the relevant data points to the recognized assets. It is essential, especially in the case of brownfield buildings, to use the help of service providers that are familiar with the operating systems in the building to ensure the best allocation of data points.

Appendix 1: Example of a typical work order list from Starbucks

Cuenta de Work Order#	Etiquetas de columna			
Etiquetas de fila	FY17	FY18	FY19	Total general
Brewing & Grinding	**428**	**482**	**288**	**1198**
Espresso Machine - Mastrena	335	366	226	927
Nitro Cold Brew Unit NL	24	40	22	86
Brewer - Digital	33	24	17	74
Grinder	15	13	7	35
Nitrogen Gas Regulator NL	6	15		21
Clover Workstation	11	5		16
Nitrogen Generator NL		8	5	13
Clover Workstation NL		5	7	12
Nitrogen Gas Regulator	1	2		3
(en blanco)			3	3
Espresso Machine – La Marzocco	2			2
Nitro Cold Brew Unit		1	1	2
Grinder - Mythos Barista		2		2
Nitrogen Gas Monitoring System NL		1		1
BUS Test Product NL	1			1
Plumbing	**249**	**231**	**119**	**599**
Toilet	66	80	20	166
Sink	76	48	40	164
Tap	40	35	21	96
Water Pipe	35	36	13	84
Drain	15	11	9	35
Insta-hot	7	9	4	20
Grease Trap	4	1	4	9
Water Heater	1	5	2	8
Urinal	1	3	4	8
Spray Arm	2	2	1	5
Cold Water Tower	2			2
Uber Hot		1		1
Pump			1	1
Refrigeration	**181**	**200**	**102**	**483**
Pastry Case - 900 Self Serve	48	63	19	130
Ice Machine - Stand Alone	33	24	14	71
Pastry Case - 900 Partner Serve	15	26	15	56
Refrigerator - UC 1 Door	14	11	9	34
Pastry Case - 1300 Split	9	14	5	28
Pastry Case - 900 Ambient	8	10	6	24
Pastry Case - Self Serve	13	6	3	22
Refrigerator - UC 2 Door	8	3	11	22
Refrigerator - Upright 1 Door	6	9	6	21
Freezer - 1 Door	4	9	3	16
Ice Machine - Modular Flake	4	6	1	11
Ice Caddy	6	5		11
ittest-rea-NLD		2	4	6
Ice Bin		4	1	5
Freezer - Non Standard	2	3		5
Ice Machine - Built In	3	1		4
Foodcase Interior Light	1	1	1	3
Refrigerator - Non Standard	2			2
Pastry Case - Ambient	2			2
Refrigerator - Multideck		1	1	2

Appendix 2: Example of an inventory list at Starbucks

Equipment Code	IFC Code	QR Code	Type of equipment	Store	Serial number	Brand	Model	Located in	Status	Cumulative reactive cost (€)	Depreciation	Acquisition va	Residual valu	Replacement cost (€)
053340 - RDA - 1			Air Distribution Network	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - CFI - 1		NSTB053340012	American Coffee Machine - LA BUNN DIGITAL	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114			-	Bar	Operative	0.00	0	0	N/A	0
053340 - AMP - 2		NSTB053340033	Amplifier	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		CROWN		Office	Operative		0	0	N/A	0
053340 - SR - 1			Anti-Theft and Control	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - SIL - 1			Armchair - Booth	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Room	Operative		0	0	N/A	0
053340 - DEA - 1			Automatic Fire Detection / Extinguishing	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - TSB - 1			Back Office	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Work Area	Operative		0	0	N/A	0
053340 - ITB - 1			Back Office Lighting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Lighting General	Operative		0	0	N/A	0
053340 - MTB - 1			Back Office Unit	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Bar	Operative		0	0	N/A	0
053340 - BAC - 1			Bactereostatic	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Hygiene General	Operative		0	0	N/A	0
053340 - BND - 1			Banner	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Signs / Image	Operative		0	0	N/A	0
053340 - BCO - 2			Banquette	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Room	Operative		62 €	0	N/A	0
053340 - BCO - 3			Banquette	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Terrace	Operative		3.482 €	0	N/A	0
053340 - BAR - 1			Bar	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Work Area	Operative		0	0	N/A	0
053340 - ILB - 1			Bar Lighting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Lighting General	Operative		268 €	0	N/A	0
053340 - MBA - 1			Bar Unit	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Bar	Operative		0	0	N/A	0
053340 - PPL - 1			Bin	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Hygiene General	Operative		0	0	N/A	0
053340 - BDA - 1			Brightener Pump	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Hygiene General	Operative		0	0	N/A	0
053340 - CDA - 2			Burglar Alarm Panel	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Office	Operative		266 €	0	N/A	0
053340 - ILS - 1			Cafe Lighting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Lighting General	Operative		259 €	0	N/A	0
053340 - CPTR - 1			Carpentry	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0
053340 - CTR - 1			Cart	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Back Office	Operative		0	0	N/A	0
053340 - CTV - 2		NSTB053340031	CCTV System	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		GENETEC	-	Office	Operative		155 €	0	N/A	0
053340 - TCHS - 1			Ceilings	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0
053340 - BECT - 1			Cetact Plug	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Electricity General	Operative		0	0	N/A	0
053340 - VTE - 1			Changing Rooms	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Work Area	Operative		0	0	N/A	0
053340 - AMF - 1		NSTB053340001	Chiller Cabinet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	E5529756	FOSTER REFRIGERATOR	EP700LSTB	Back Office	Operative		289 €	0	N/A	0
053340 - AMF - 2		NSTB053340002	Chiller Cabinet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	E5529757	FOSTER REFRIGERATOR	EP700LSTB	Back Office	Operative		0	0	N/A	0
053340 - AMF - 4		NSTB053340004	Chiller Cabinet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	E5432650	FOSTER REFRIGERATOR	EP700HU	Back Office	Operative		0	0	N/A	0
053340 - AMF - 5		NSTB053340005	Chiller Cabinet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	E5432652	FOSTER REFRIGERATOR	EP700HU	Back Office	Operative		0	0	N/A	0
053340 - AMF - 6		NSTB053340034	Chiller Cabinet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	E5585737	FOSTER REFRIGERATOR	EP700L	Back Office	Operative		0	1.783 €	N/A	0
053340 - EOC - 1			Civil Engineering / Construction	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - BI - 1			Cleaning & Disinfection / Pest Control	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - DDD - 1			Cleaning & Disinfection / Pest Control	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - DPL - 1			Cleaning Products Dispenser	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Hygiene General	Operative		0	0	N/A	0
053340 - LIA - 1			Cleaning Toilets	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				General Cleaning	Operative		0	0	N/A	0
053340 - DIT - 1		NSTB053340013	Coffee Mill - DITTING	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	2032365031	DITTING	KR 804 CLOVER	Bar	Operative	0.00	0	0	N/A	0
053340 - FC - 1			Cold and Conservation	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - CON - 1			Cold Unit Condiments - Condiments Bar	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Room	Operative		0	0	N/A	0
053340 - ORD - 1			Computer	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Office	Operative		0	0	N/A	0
053340 - GIC - 1			Computing & Communications	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - CCS - 1			Construction General	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - FTCON - 1			Continuous False Ceiling	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Ceilings	Operative		177 €	0	N/A	0
053340 - CP - 1			Cooking / production	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - ZCL - 1			Customer Area	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Salon	Operative		0	0	N/A	0
053340 - MC - 1			Customer Furniture	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - FCH - 1			Data Sheet	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - LIP - 1			Deep Cleaning	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				General Cleaning	Operative		655 €	0	N/A	0
053340 - DFSR - 1			Diffuser	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				HVAC and Extraction General	Operative		0	0	N/A	0
053340 - MSA - 1			Dining Room Table	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Room	Operative		0	0	N/A	0
053340 - MSA - 2			Dining Room Table	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Terrace	Operative		0	0	N/A	0
053340 - RPMIN - 1			Disabled Ramp	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Steps	Operative		0	0	N/A	0
053340 - BBB - 1		NSTB053340015	Drinks Whisk	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	062892	VITA-MIX	VM0149	Bar	Operative		0	0	N/A	0
053340 - BBB - 2		NSTB053340016	Drinks Whisk	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	062892	VITA-MIX	VM0149	Bar	Operative		50 €	0	N/A	0
053340 - RIRA - 1			Drive / Return Grating	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				HVAC and Extraction General	Operative		0	0	N/A	0
053340 - VTD - 1			Dump	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Back Office	Operative		0	0	N/A	0
053340 - PST - 1			Earthing	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Electricity General	Operative		0	0	N/A	0
053340 - EBD - 1		NSTB053340026	Ecoboiler for Drinks Dispenser	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	0618017778	MARCO	ECOBOILER UC4 2.4KW EU	Bar	Operative		1 €	0	N/A	0
053340 - CAEL - 1			Electric Cable	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Electricity General	Operative		363 €	0	N/A	0
053340 - TEA - 1		NSTB053340009	Electric Water Heater	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	GRN180600036AN	MEGAFLO	MEGAFLO ECO 210DD	Plumbing General	Operative		0	0	N/A	0
053340 - EL - 1			Electrical	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - CEL - 1		NSTB053340029	Electrical Board	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Electricity General	Operative		0	0	N/A	0
053340 - CJEL - 1			Electrical Box	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Electricity General	Operative		386 €	0	N/A	0
053340 - GBT - 1			Electricity General	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - CTE - 1			Electricity Meter	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Electricity General	Operative		0	0	N/A	0
053340 - IEM - 1			Emergency Lighting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Lighting General	Operative		0	0	N/A	0
053340 - AEM - 1			Employee Toilets	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Work Area	Operative		0	0	N/A	0
053340 - RTE - 1			Exterior Sign	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Signs / Image	Operative		0	0	N/A	0
053340 - CRME - 1			External Enclosures	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0
053340 - EXPO - 1			Extinguisher	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Fire Protection General	Operative		0	0	N/A	0
053340 - FAU - 1			Fabric Chair - Fauteuil	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114			-	Room	Operative		0	0	N/A	0
053340 - INS - 1			Facilities	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Stores	Operative		0	0	N/A	0
053340 - PTAR - 1			Fire / Metal Door	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				General Metalwork / Steel	Operative		0	0	N/A	0
053340 - SCI - 1			Fire and Evacuation Signage	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Fire Protection General	Operative		0	0	N/A	0
053340 - SNCI - 1			Fire Detection Siren	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Fire Protection General	Operative		0	0	N/A	0
053340 - CI - 1			Fire Fighting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - BIEI - 1			Fire Hydrant	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114		-	-	Fire Protection General	Operative		0	0	N/A	0
053340 - GCC - 1			Fire Protection General	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - SLOS - 1			Floors	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0
053340 - CMTC - 1			Foundations	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0
053340 - LAF - 1		NSTB053340008	Front Opening Dishwasher	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114	2958021	HOBART	STBE40DEMA-13	Back Office	Operative		0	0	N/A	0
053340 - PYF - 1			General - STORE MAP AND DATA SHEET	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114					Operative		0	0	N/A	0
053340 - GLI - 1			General Cleaning	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - GME - 1			General Metalwork / Steel	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Facilities	Operative		0	0	N/A	0
053340 - PINT - 1			General Painting	053340 - Starbucks Nederland - Alexandrium - Poolsterstraat 114				Construction General	Operative		0	0	N/A	0

References

IFSE Parameter Data Dictionary 7.21 (to be downloaded at www.ifsebim.org)

Revit Guideline for Food Service Equipment Content Creation by IFSE, July 2021 (to be downloaded at www.ifsebim.org)

Example video Foodservice Industry is Making Wide Use of BIM | Specifi Global EN and Specifi® Design - Introduction - UK on Vimeo

Work Orders Example overview from Starbucks case

Acknowledgements

Authors

Fred Kloet, BIM-Connected (Netherlands)

Noam Hadromi, Siemens (Switzerland)

Andrea Aiello, ACCA Software (Italy)

Sergio Fernandez de Sevilla, Retain (Spain)

Lai Wei, CBS (China)

Frank Wagner, FCSI/KDREI (Germany)

Roberto Assi, FCSI/Prima Consulting (Serbia)

Mike Hallas, Sodexo (United Kingdom)

Daniel Stonecipher, IFMA (United States of America)