|  |
| --- |
| British Land |
| Smart Building Design Guideline – For Commercial Offices & Retail Premise ‘Data Strategy’ High Level Design Document |
| |  |  | | --- | --- | |  | | | Version | 1.6 | | Date | April 2020 | | Contact | British Land Smart Places team | | Copyright | Copyright © 2019 The British Land Company PLC | |

Table 1 Revisions

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Version No | Author | Amendments |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Contents

[1 references 4](#_Toc43046770)

[2 Purpose of the Report 5](#_Toc43046771)

[2.1 Preamble 5](#_Toc43046772)

[2.2 Document Scope 5](#_Toc43046773)

[3 <Insert Deliverable name here> 7](#_Toc43046774)

[3.1 Deliverable Description 7](#_Toc43046775)

[3.1.1 Fan Coil Units 7](#_Toc43046776)

[3.1.2 AHU 9](#_Toc43046777)

[3.2 Device Labelling (QR Codes) 12](#_Toc43046778)

[3.2.1 Device Labelling (QR Codes) 13](#_Toc43046779)

[3.3 Control Schematics 14](#_Toc43046780)

[Appendix A - ACROynMS and abbreviations 16](#_Toc43046781)

[Appendix B - architectural specification 17](#_Toc43046782)

[Appendix C - 18](#_Toc43046783)

[Figure 1 QR Code Diagram 12](#_Toc43047180)

[Figure 2 Example MEP System Engineer Control Schematic 13](#_Toc43047181)

[Table 1 Revisions 2](#_Toc43047187)

[Table 2 ‘State’ Payload JSON Standardisation 7](#_Toc43047188)

[Table 3 ‘Pointset’ definitions 8](#_Toc43047189)

[Table 4 logentry definition 8](#_Toc43047190)

[Table 2 ‘State’ Payload JSON Standardisation 9](#_Toc43047191)

[Table 3 ‘Pointset’ definitions 10](#_Toc43047192)

[Table 4 logentry definition 10](#_Toc43047193)

[Table 5 FCU dataset 14](#_Toc43047194)

# references

1. American Society for Testing Materials (ASTM).
2. American Society for Testing Materials (ASTM).
3. ANSI/TIA/EIA-310-D Cabinets, Racks, Panels, and Associated Equipment.
4. ANSI/TIA/EIA-569-B - Commercial Building Standard for Telecommunications Pathways and Spaces (October 2004)
5. ANSI/TIA/EIA-606-A - Administration Standard for Commercial Telecommunications Infrastructure (May 2002).
6. ANSI/TIA-526-14-A - OFSTP-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
7. ANSI/TIA-568-C.0 - Generic Telecommunications Cabling for Customer Premises.
8. ANSI/TIA-568-C.1 - Commercial Building Telecommunications Cabling Standard.
9. ANSI/TIA-568-C.2 - Balanced Twisted-Pair Telecommunication Cabling and Components Standard.
10. ANSI/TIA-568-C.3 - Optical Fibre Cabling Components Standard.
11. ANSI/TIA-598-C - Optical fibre Cable Color Coding (January 2005).
12. ICEA S-83-596 - Indoor Optical Fibre Cables.
13. ISO 9001:2008 - Quality Management Systems – Requirements.
14. ITU-T G.652 - Transmission Systems and Media, Digital Systems and Networks – Characteristics of a Single-Mode Optical Fibre Cable.
15. J-STD-607-A - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications - (October 2002).
16. Local Telecommunications Authority Regulations.
17. Underwriters Laboratories (UL) Cable Certification and follow up Program.

# Purpose of the Report

## Preamble

The purpose of the document is to serve as a High-Level Design Document template to assist the Smart Building Consultant in submitting the required deliverables for each stage of the project. The document is meant to articulate the required actions for each of the project.

## Document Scope

This part is used to provide a brief overview of the deliverables contained within the document and the RIBA stage and the actions that have been carried out by the Smart Building Consultant.

This document provides description of the Data Strategies for the following systems.

|  |  |
| --- | --- |
| **ID** | **System Description** |
|
| 1. | Air curtains |
| 2. | Air/Dirt Separators |
| 3. | ATS |
| 4. | Automatic opening vents (AOV) - Colt |
| 5. | Blinds / Louvre System |
| 6. | BMS Touchscreen |
| 7. | Booster pump panel |
| 8. | Booster Sets |
| 9. | Bulk salt saturator |
| 10. | CAT5 Tank & Pump |
| 11. | CAV's (Controls) |
| 12. | Chillers (Controls) |
| 13. | Chlorine Dioxide Water Treatment |
| 14. | Cooling Tower |
| 15. | Cooling Tower Water Treatment |
| 16. | CRAC Units (Downflow) |
| 17. | CRAC Units (Horizontal) |
| 18. | Digital tank management system |
| 19. | Dosing Pot |
| 20. | EMS |
| 21. | FCU's |
| 22. | Fire Alarm |
| 23. | Fuel System |
| 24. | Gas Boosters |
| 25. | Gas Meters (Pulse) |
| 26. | Gas suppression |
| 27. | Generators |
| 28. | Grease separator |
| 29. | Greywater recycling |
| 30. | Greywater recycling booster pumps |
| 31. | Heat Energy Meters (Water) |
| 32. | Heat pumps |
| 33. | Hot water system pump |
| 34. | Irrigation System |
| 35. | Leak Detection |
| 36. | Lighting Control |
| 37. | Loading bay ventilation system |
| 38. | Mechanical Heat Recovery Units (MVHR) |
| 39. | Particle filter |
| 40. | Plate Heat Exchanger |
| 41. | Pressurisation Units |
| 42. | Pumps |
| 43. | Side stream filter |
| 44. | Smoke Fans (Inverters) |
| 45. | Sprinkler System |
| 46. | Sump Pump |
| 47. | Swimming pool |
| 48. | Toilet Extract Fans (Controls) |
| 49. | Toilet Extract Fans (Inverters) |
| 50. | Trace heating |
| 51. | UPS System |
| 52. | UV Filter |
| 53. | Vacuum degasser |
| 54. | VAV's (Controls) |
| 55. | Vertical Transport |
| 56. | VSD's (AHUs) |
| 57. | Water conditioning plant |
| 58. | Water heaters |
| 59. | Water Meters |
| 60. | Water softening plant |

# <Insert Deliverable name here>

## Deliverable Description

The following section defines the DataObjects/types and their constructs and shall be strictly adhered too in order to achieve consistent identification and data management of assets and devices in the Cloud.

### Fan Coil Units

Example -FCU Controller

Table 2 ‘State’ Payload JSON Standardisation

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1 |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "system": |  |
| "make\_model": | "EasyIO-FS", |
| "instance\_Type": | "IoT\_Ctrl", |
| "device\_type": | "fan-coil-unit" |
| "device\_name": | "FCU-01", |
| "device\_id": | "cmK kTsorQvp0c2EcMrLUPJ", |
| "max\_ update\_ms": | 50000, |
| "change\_of \_value ": | "300", |
| "IPv4": | "a.b.c.d/ABC", |
| "MAC\_Addr": | "M:M:M:S:S:S" |
| "FCUZnTempStPt": |  |
| "units": | "Degrees-Celsius", |
| "status”: | "present\_value": "20.0" } |
| Other |  |

Example -FCU Controller

Table 3 ‘Pointset’ definitions

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1w |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "points": |  |
| "FCUOccMd": |  |
| "units": | No Units |
| "status": { | "present\_value": |

Example -FCU Controller

Table 4 logentry definition

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1w |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "system": |  |
| "make\_model": | "EasyIO-FS", |
| "instance\_Type": | "IoT\_Ctrl", |
| "device\_id": | "cmK kTsorQvp0c2EcMrLUPJ", |
| "max\_ CPU": | “percentage %” |
| “max\_RAM”: | “percentage %” |
| “max\_mem”: | “percentage %” |
| “max\_tab\_entry”: | “number” |
| “save\_level\_notification”: | “number + append level” |
| “msg\_ignored”: | “percentage + level” |
| “msg\_dropped”: | “percentage + level” |
| “table\_entries\_flushed”: | “percentage + level” |
| “net\_stat\_util”: | “unicast\_pkts”  “multicast\_pkts”  “broadcast\_pkts”  “input\_pkts”  “buffer\_percentage”  “output\_errors”  “input\_errors”  “lost\_carrier”  “interface\_resets” |

### AHU

Example -AHU Controller

Table 2 ‘State’ Payload JSON Standardisation

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1 |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "system": |  |
| "make\_model": | "EasyIO-FS", |
| "instance\_Type": | "IoT\_Ctrl", |
| "device\_type": | "fan-coil-unit" |
| "device\_name": | "FCU-01", |
| "device\_id": | "cmK kTsorQvp0c2EcMrLUPJ", |
| "max\_ update\_ms": | 50000, |
| "change\_of \_value ": | "300", |
| "IPv4": | "a.b.c.d/ABC", |
| "MAC\_Addr": | "M:M:M:S:S:S" |
| "AHUZnTempStPt": |  |
| "units": | "Degrees-Celsius", |
| "status”: | "present\_value": "20.0" } |
| Other |  |

Example -AHU

Table 3 ‘Pointset’ definitions

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1w |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "points": |  |
| "AHUOccMd": |  |
| "units": | No Units |
| "status": { | "present\_value": |

Example -AHU Controller

Table 4 logentry definition

|  |  |
| --- | --- |
| **Description Key** | **Value** |
| Version 1 | 1w |
| "name\_space\_authority": | "British\_Land\_Plc", |
| "name\_space\_version": | "BLNS-001\_2020.01.01", |
| "timestamp": | "2019-0-17T14: 02:29.3642", |
| "system": |  |
| "make\_model": | "EasyIO-FS", |
| "instance\_Type": | "IoT\_Ctrl", |
| "device\_id": | "cmK kTsorQvp0c2EcMrLUPJ", |
| "max\_ CPU": | “percentage %” |
| “max\_RAM”: | “percentage %” |
| “max\_mem”: | “percentage %” |
| “max\_tab\_entry”: | “number” |
| “save\_level\_notification”: | “number + append level” |
| “msg\_ignored”: | “percentage + level” |
| “msg\_dropped”: | “percentage + level” |
| “table\_entries\_flushed”: | “percentage + level” |
| “net\_stat\_util”: | “unicast\_pkts”  “multicast\_pkts”  “broadcast\_pkts”  “input\_pkts”  “buffer\_percentage”  “output\_errors”  “input\_errors”  “lost\_carrier”  “interface\_resets” |

## Device Labelling (QR Codes)

The following diagram is required to show the QR strategy for each system.

Example Fan Coil Unit



Figure 1 QR Code Diagram

<Smart Building Consultant to identify all components that will get a QR Code. >

## Control Schematics

<The smart building consultant shall be responsible for providing a list of the data related to each system> .

Examples

< Schematic from MEP system Engineer>



Figure 2 Example MEP System Engineer Control Schematic

The following is the table being created by the Smart Building Consultant>

Table 5 FCU dataset

|  |  |  |
| --- | --- | --- |
| **Property** | **Point Abbreviation** | **MQTT Payload** |
| Occupied Mode | FCUOccMd | Pointset |
| Chilled Water Valve | FCUCWVlv | Pointset/Config |
| Hot Water Valve | FCUHWVlv | Pointset/Config |
| Supply Air Temperature | FCUSATemp | Pointset |
| Return Air Temperature | FCURATemp | Pointset |
| Fan Command | FCUFanCmnd | Pointset/Config |
| Fan Speed | FCUFanSpd | Pointset/Config |
| Zone Temperature | FCUZnTemp | Pointset |
| Zone Temperature Setpoint | FCUZnTempStPt | State |
| Occupied Cooling Setpoint | FCUOccCoolStPt | State |
| Occupied Heating Setpoint | FCUOccHtgStPt | State |
| Unoccupied Cooling Setpoint | FCUUnoccCoolStPt | State |
| Unoccupied Heating Setpoint | FCUUnoccHtgStPt | State |

1. - ACROynMS and abbreviations

|  |  |
| --- | --- |
| Abbreviation | Meaning |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. - architectural specification
2. -