SYMETRI
ADDNODE GROUP

To: Client Name

Guidance Document R2

For: Building Information Modelling (BIM) Level 2 Accreditation

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Table of Contents

1 DOCUMENT HISTORY

Version 2 issued March 2013.

Changes made in Version 3 (March 2015).

Update to the format of the BIM scheme guidance document to incorporate additional standards applicable to BIM provision

Changes made in Version 4 (November 2016)

Re-formatted document to Symetri branding.

Amended to reflect the Lloyds Register & Symetri working partnership in the provision of a Building Information Modelling Level 2 Business Systems Certification Scheme.

Changes made in Version 5 (July 2019)

Amended to reflect changes made by Lloyd's Register in compliance with ISO 19650-2 superseding PAS 1192-2 as core BIM Level 2 standard.

2 INTRODUCTION AND PURPOSE

The purpose of this document is to provide details for BIM Providers of the requirements they need to meet for Accreditation under the Building Information Modelling Level 2 Business Systems Certification Scheme (BIMCCS).

The UK Government has recognised the benefits of BIM which are well publicised both within the UK and internationally. As a consequence of these accepted and proven benefits, the UK Government has required all centrally public funded construction projects to be performed by 'BIM Ready' organisations since 4th April 2016. Lloyd's Register EMEA have developed a BIM Accreditation process that certifies organisations involved throughout the BIM cycle as 'BIM Ready' for various scopes of work, as defined in Section 4, which contribute to a BIM project.

The benefits that BIM can bring to a project, however, are acknowledged globally with many countries having produced their own BIM standards and whilst the guidance document has focused on International and UK related BIM standards and protocols, nevertheless, the assessment process and principles defined within this document can be applied to all BIM project supply chain members, providing assurance to the client and fellow members of the supply chain as to the capability of the BIM accredited organisation regardless of their geographic location.

This guidance document describes the route to Accreditation and the assessment processes involved in the achievement of both partial (following a successful gap analysis; provided by Symetri) and full Accreditation (following a successful implementation assessment against a live BIM project, provided by Lloyds Register, supported by Symetri).

Post certification, a surveillance programme is established to ensure that standards, processes and competencies against which the Accreditation was originally awarded, are maintained throughout the 3-year Accreditation period.

An essential feature of the Accreditation process is to provide assurance that the practices and procedures against which Accreditation is awarded are consistently applied and maintained. As a result, ongoing performances are regularly checked throughout the Accreditation period.

In addition to specifying the technical requirements, this document outlines (in Appendix A), the process for accrediting BIM Providers under the scheme and describes what actions need to be completed to maintain Accreditation.

2.1 Definitions - Explanation of Terminology

Accreditation – see Appendix A for details of the Accreditation process and the arrangements covering the granting of 'Partial' and 'Full' Accreditation.

Accreditation Body – an organisation which undertakes the assessment of the competence of BIM Providers in accordance with the Scheme requirements.

Accreditation Certificate – a certificate awarded to a BIM Provider by the Accreditation Body for a scope(s) of work assessed under the Scheme.

Accreditation Period – 'Partial' Accreditation validity is for a term of 1-year and 'Full' Accreditation validity is for a term of 3-years.

Assessment – objective and detailed evaluation of the BIM Provider to determine their capability in accordance with the Scheme criteria.

Competency – a combination of qualifications, training, knowledge, experience, aptitude and fitness for the job.

Deficiency – the identified absence of or a failure to implement or maintain one or more of the specified criteria. These may be characterised as major, minor or observations as defined within section 2.3.

Procedure – a specified way of carrying out a process or activity. Where specified procedures shall be documented, such procedures shall be version controlled with the approver/authoriser of each document identifiable. The media used for documented procedures shall enable the information to be readily accessible by those working on associated activities.

Process – a set of interrelated activities for transforming inputs into outputs.

Scheme – The general requirements of BIM Provider as defined in this document.

BIM Provider – a company meeting the requirements for BIM Accreditation and which has been assessed as competent in accordance with the scheme requirements.

2.2 Mandatory/Non Mandatory Terms

In this document the following terms have the stated meanings.

Shall:	Indicates a mandatory requirement,
Should:	Indicates a strong preference and is used to denote best practice or where a new requirement is being introduced, and
May:	Indicates an option which is not mandatory.

2.3 Definitions of Major and Minor Non-Conformities

Major Non-Conformities occur where there is:-

- Objective evidence which demonstrates that an element from the scheme requirements has not been documented or implemented or maintained;
- Repetitive failures (product quality or systems) or multiple minor non conformities in a single category;
- Significant numbers of minor non conformities;
- Action not taken to close previously identified minor non conformities within agreed timescales or to meet the milestone goals set at the time of Accreditation;
- Performing work which is outside the registered scope(s).

Minor Non-Conformities occur where there is:-

- Objective evidence that there is a weak element within the management system, a procedure or control for the effective implementation and maintenance of the scheme requirements;
- Isolated cases of non-conformance to procedures;
- Limited shortfalls in established documented management and Health & Safety systems, and
- Failure in observing customer care protocols.

2.4 Other Finding Grading Definitions

Requires Corrections (RC) are raised when:-

- The assessment identifies a single incident which needs correction but does not imply a threat to system integrity.

Scopes for Improvement (SFI) are raised when:-

- The assessment identifies an aspect of the Service Providers operation where, whilst scheme compliant, there is potential for improvement.

LR Prompts (LRP) are observations made where:-

- The assessment identifies a potential weakness which the Accreditation Body may wish to fully examine at their next assessment visit.

2.5 Abbreviations & Standards

2.5.1 Abbreviations

AIM	Asset Information Model
AIR	Asset Information Requirements
BASIR	Built Asset Security Information Requirements

BEP	BIM Execution Plan
BIM	Building Information Modelling
BIM Provider	BIM scheme service provider
CAWS	Common Arrangement of Work Sections
CDE	Common Data Environment
CDM	Construction, Design and Management Regulations
COBie	Construction Operation Building information exchange
DMS	Document Management System
EIR	Employer's Information Requirements
IDP	Information delivery plan
LR	Lloyd's Register (EMEA)
MIDI	Master Information Document Index
MIDP	Master Information Delivery Plan
OIR	Organization Information Requirements
PIM	Project Information Model
PIP	Project Implementation Plan
TIDP	Task Information Delivery Plan

2.5.2 Standards

ISO 19650-1:2018	Organisation and Digitisation of information about Buildings and Civil Engineering Works including BIM – Concepts and Principles
ISO 19650-2:2018	Organisation and Digitisation of Information about Buildings and Civil Engineering Works including BIM – Asset Delivery Phase
PD 19650-0:2019	Transition Guidance to ISO 19650
PAS1192-3:2014	Specification for information management for the operational phase of assets using building information modelling.
BS1192-4:2014	Collaborative production of information. Fulfilling employer's information exchange requirements using COBie. Code of practice
PAS1192-5:2015	Specification for security-minded building information modelling, digital built environments and smart asset management.
BS 8536-1 - 2015	Briefing for design and construction – Part 1: Code of practice for facilities management (Buildings infrastructure).
BS 8536-2 - 2016	Briefing for design and construction – Part 2: Code of practice for asset management (Linear and geographical infrastructure).
PAS 91:2013	Construction Prequalification Questionnaires
BS8541-1:2012	Library Objects for architecture, engineering and construction – Identification and Classification – Code of practice
BS8541-2:2011	Library Objects for architecture, engineering and construction – Recommended 2D symbols of building elements for use in building information modelling
BS8541-3:2012	Library Objects for architecture, engineering and construction – Shape and Measurement. Code of practice

BS8541-4:2012	Library objects for architecture, engineering and construction. Attributes for specification and assessment. Code of practice
BS8541-5:2015	Library objects for architecture, engineering and construction. Part 5: Assemblies – Code of practice.
BS8541-6:2015	Library objects for architecture, engineering and construction. Part 6: Product and facility declarations – Code of practice.
BS ISO 10007:2015	Quality management systems. Guidelines for configuration management.
BS ISO 16739:2013	Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries
BS 7000-4:2013	Design management systems. Guide to managing design in construction.
ISO 44001:2017	Collaborative business relationships management system
BS ISO 29481-1:2010	Building information modelling. Information delivery manual. Methodology and format
BS ISO 29481-2:2012	Building information models. Information delivery manual. Interaction framework
BS ISO 16739:2013	Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries
BS ISO 12006-3:2007	Building construction. Organization of information about construction works. Framework for object-oriented information

3 RESPONSIBILITIES

Accreditation is a demonstration that procedures, processes and competencies have been established by a BIM Provider to ensure consistent delivery of the accredited scopes of work to the BIM scheme requirements and in accordance with industry good practice and requirements.

An essential feature of the approval process is the assurance that procedures and practices against which approval has been awarded is consistently applied and maintained by the BIM Provider. This is verified through an ongoing surveillance audit programme which checks, over the period of Accreditation, work carried out and associated supporting procedures and processes.

3.1 BIM Service Provider Responsibilities Under the Terms of the Accreditation Scheme

BIM Providers shall:

- maintain an effective management structure to consistently deliver accredited scopes of work to the scheme requirements;
- clearly define the scope of the services they provide;
- be pro-active in monitoring the quality of their work without reliance on the Accreditation Body;
- arrange with the Accreditation Body for visits to be completed in accordance with the agreed surveillance programme;
- ensure deficiencies identified by the Accreditation body are closed out within agreed time scales;
- notify the Accreditation Body of the following:
    - changes to key personnel including contact details;
    - changes to ownership, and
    - award of the first contract for a scope of work for which partial Accreditation is currently held.
- rectify any defects notified by the Accreditation body, or a client, that are the BIM Provider responsibility;
- agree to increase audit frequencies where poor performance is identified.

3.2 Risk Management

BIM Providers should establish a risk management process which evaluates on going risk to their Accreditation status. Subcontracted aspects of their accredited scopes of work should be incorporated into this process.

Examples of where risks to Accreditation can arise are:

- failure to manage risk from use of external libraries;
- failure to manage data security risks or inadequate checking of cloud providers etc.;
- failure to consider additional risk assessment for security concerns;
- reliance on scheme Accreditation as the sole indicator of consultants and contractors on-going competence (as the checks completed on providers are limited in number and may only periodically sample the work elements being sub-contracted);
- inadequate checking of sub-contracted activities or not ensuring that scheme requirements delegated to others are being adequately performed, and
- the turnover, availability and consistency of qualified and competent staff.

3.3 Accreditation Body Responsibilities

In operating the scheme the Accreditation Body shall:-

- conduct evaluations against the scheme requirements in a technically competent and objective manner;
- adopt a pragmatic but consistent approach to the maintenance of scheme standards;
- plan audits visits which, over time, comprehensively cover the scope of Accreditation;
- endeavour to respect BIM Provider business constraints;
- take action to investigate/suspend BIM Providers who do not promptly respond and take the required action when a major deficiency is identified;
- maintain minimum assessor competency requirements, and
- ensure any information determined in respect of the BIM Providers commercial business interests is treated in confidence and not passed to any third party except to meet the direct requirements of the operation of the scheme.

4 SCOPES

Accreditation will be awarded against the scopes listed below, as applicable. Where a BIM Provider has multiple office or project locations, Accreditation may be given to the assessed location only. Alternatively, if the assessor has confidence that the Provider's processes are robust and supported by a signed statement by a Director level that all such offices, included under the Accreditation umbrella, have adopted the same processes procedures and competencies of the office subject to assessment, then Accreditation may be given to all defined locations with the agreement that all such locations will be verified for compliance, once, as a minimum, during the 3-year surveillance visit programme .

BIM maturity levels will be included in the scope of Accreditation .

BIM Level 2 shall only be awarded where full compliance with PAS 91:2013, ISO 19650-1, ISO 19650-2, PAS 1192-3:2014, BS 8536-1:2015, BS 8541, ISO 44001: 2017 can be demonstrated as may be applicable to the scopes of Accreditation sought.

4.1 Project Delivery Provider - Appointing Party /Lead Appointed Party

This scope includes what was formerly defined within PAS 1192-2 as Tier 1 consultants, contractors or Client organisations fulfilling the requirements of Tier 1 including Information Management, Project Delivery Management, Lead Designer (as relevant) as described in Task Team Manager, Task Information Manager, Interface Manager and Information Originator where applicable.

The BIM level 2 achieved together with supply chain role designation and specialist area accredited, will be included on the Accreditation certificate:

Examples:
BIM Level 2 – Project Delivery Provider – Appointed Party (Client).
BIM Level 2 – Project Delivery Provider – Lead Appointed Party (Project Designer/ Architect).
BIM Level 2 – Project Delivery Provider – Lead Appointed Party (Project Designer/ Contractor).

4.2 Project Delivery Provider - Appointed Party

This scope includes what was formerly defined within PAS 1192-2 as Tier 2 consultants, contractors and suppliers fulfilling the requirements of Tier 2 including Task Team Manager, Task Information Manager, Interface Manager and Information Originator.

The BIM level achieved, party designation and specialist area which is accredited will be included on the Accreditation certificate:

Examples.
BIM Level 2 – Project Delivery Provider– Appointed Party (Engineering Consultancy and Design).
BIM Level 2 – Project Delivery Provider– Appointed Party (BIM Object Originator/ Provider).

5 ASSESSMENT SUMMARY

5.1 Assessment of Organisation and Structure

BIM Service Providers need to have a defined company structure with documented roles and responsibilities.

Specifically they shall have:-

- a company policy and statement of the company's role within BIM;
- a clear definition of the scope of the services provided;
- a documented management structure with named roles/ individuals and their areas of responsibility detailed on a responsibility and management assignment matrix;
- a managed BIM awareness process for the company's personnel, including a training process where relevant;
- a nominated person who is responsible for quality management;
- documented levels of delegation and limits of responsibility, and
- relevant knowledge and experience in relation to BIM.

Further examples of BIM Provider roles, responsibilities and how BIM Providers conduct relationship management shall be demonstrated such that:

Delegation of authority:

- Confirmation, authorisation of information as contractual documentation and definition of information requirements, and
- Define, at an individual or generic role level, all limits of authority together with the extent of variations against the design that can be accepted by the role holder without the approval of a nominated competent person.

Timely and compliant delivery at each of the information exchanges and key decision points:

- A collaborative framework is setup between all parties and roles to ensure the development, its consistency and integrity for the production of the MIDP, EIR, BEP (Pre and Post Contact) and CDE;
- The agreed information exchanges have the ability to be delivered against the agreed programme;
- Delays and ambiguity have been obviated;
- The initial and on-going confirmation of suppliers' capability to deliver the information requirements;
- The preparation and revision of the Master Information Delivery Plan;
- Initiation of a project induction meeting to confirm resource capability and availability;

- Ensure clarity of roles and responsibilities of delivery team, and
- Ensure that the task information is produced using the agreed standards, methods and agreed project IT systems.

Responsibility for the coordinated delivery of all design information:

- Manage the design, including information development and approvals;
- Confirm the design deliverables of the design team;
- Establish the CDE status strategy and ownership;
- Establish the structural grid and floor levels;
- Responsibility for task based design output, and
- Negotiation on behalf of the task team, in relation to design coordination and/or space allocation.

References:
ISO 19650-2:2018.
ISO 44001:2017.
PAS 91 Pre-qualification questionnaires and assessment.

5.2 Assessment of HR, Training and Competency

BIM Providers need to ensure that personnel responsible for areas of work carried out under this scheme are competent to do so and satisfy general and scope specific competency requirements. Specifically they shall:-

- have a documented HR procedure detailing recruitment, selection, interview and appointment criteria;
- have job descriptions, detailing responsibilities and minimum training/experience/qualification criteria and shall be issued to all staff whose role materially contributes to the delivery of work directly related to the scopes of Accreditation held. Job descriptions should also detail BIM related responsibilities;
- have a documented process for determining competency and document minimum competency requirements comprising training, experience and qualification for scope specific and management positions;
- assess and document by a suitably competent person, the competency of persons performing roles for which competencies have been set;
- review, by a suitably competent person, on-going competencies at least annually. These competency reviews shall be documented and recorded;
- ensure that the minimum documented competencies are satisfied and that staff are trained and qualified for the work they carry out;
- provide a competency matrix for the complete project team which established and defines minimum competencies for each team grade and actual competencies held by named individuals;

- provide a competency evaluation process underpinning the minimum competencies defined;
- have a training programme in place which is adequate to close any competency gaps and evaluate training needs (including new starters);
- ensure that any role holders who have yet to be assessed as fully competent to do a particular task are adequately supervised and supported;
- have job descriptions for all staff that include details of responsibilities and limits of authority;
- have a system in place to keep personnel up to date with software and other BIM related upgrades and releases;
- have a collaboration framework and relationship management plan which is defined, understood and completed between all parties, and
- ensure that any grievance and disciplinary issues are dealt with effectively and with minimal adverse impact on the business or employee relations.

Role specific competencies are best summarised in a matrix which is related to role task requirements and which details the minimum requirements for each grade, showing the actual level of competence held by each individual performing that role. Such a matrix should be supported with evidence confirming qualifications, training, experience, aptitude and fitness for the role.

Service Providers may be required to justify their minimum competency levels as defined within the matrix and to that end should have a documented competency evaluation process.

Service Providers shall ensure that personnel who materially contribute to the delivery of any aspect of a BIM project receive appropriate training and development. This may be through formal training or structured job based learning. Before undertaking new activities personnel should receive adequate induction training.

In the development of training plans, Service Providers shall ensure that medium term resource requirements and envisaged technological changes have been adequately considered.

Records shall be kept of all training given and qualifications held.

Although formal qualifications are not generally required for administrative posts, measures of performance should be in place which ensure that the quality of the administration service is satisfactory and complies with the requirements specified for the work being done.

References and suggested requirements:
Competency matrices.
Individual files detailing qualifications training and experience.
Training/supervisory/mentoring programmes.
Grievance procedures defined with record of frequency of implementation.
ISO 44001 Relationship Management plan.
PAS91 Pre-qualification questionnaire assessment Table 8, O4-Q3 & Q4.

5.3 Assessment of Configuration Activities

BIM Providers shall have procedures in place to address configuration management, generally in accordance with BS ISO 10007:2015 Quality Management Systems – Guidelines for Configuration Management and ISO 19650-2:2018

The procedures shall define the requirements for the production of a configuration management plan which shall include:-.

- responsibilities and authorities including the dispositioning authority;
- appointment where applicable of an Interface Manager;
- Configuration management process should conform to ISO 10007:2017 or equivalent demonstrating appropriate controls over changes to the model/supporting input;
- Procedures shall define the configuration management process and which produces a plan which specifies roles and responsibilities for controlling and directing the work;
- Adequate numbers of competent staff are to be engaged on directing and controlling configuration and the design shall be revalidated following any design changes or variations;
- Identify critical design criteria, such as dimensional accuracy and check that this criterion is compatible with EIR;
- Ensure that designs are suitably tested and configuration clashes identified and resolved, and
- A clash tolerance strategy defined for each stage of project which is measured at each stage and compatible with EIR.

Clash avoidance detection should be continuous process and applied throughout:

- management of spatial co-ordination;
- liaison with other interface managers, and
- a system to resolve interface clashes.

Configuration activities shall also include:

- a document management process including maintenance of document file structures;
- records of BIM related documents – what is recorded and for how long it is kept;
- a change control process for relevant documents and data;
- management of external documents, standards and software to ensure they are still current;
- a system for introducing newly published relevant documents, standards and software;

- a process for ensuring information provided by clients is checked, approved and a baseline set prior to producing library objects;
- a training system which accounts for configuration changes/variations and tolerance control with the cross checking with appropriate standards (configuration management controls);
- a system back up regime, and
- an audit and checking process in place.

Adequate numbers of competent staff are to be engaged on directing and controlling configuration and the design shall be revalidated following any design changes or variations.

Configuration management verification shall include all components which are being incorporated in the planned construction.

References and suggested requirements:
CPIx Protocol – Team capability review and BIM or CAD system traceability.
ISO 44001:2017 Project collaboration system/framework.
Client document model management system.
Client FM system updates.

5.4 Assessment of Procurement and Subcontracting

BIM Object Provider/Originators shall establish appropriate procurement processes which have regard to operating philosophies with the need to meet contract commitments.

Specifically the procedures shall:

- ensure competency of sub-contractors and their individual staff who may be assigned to BIM work provision and services, including the use of BIM supplier, IT and resource assessment forms;
- include methods of assessment for the selection of sub-contractors/other consultants employed in relation to BIM Provision services. The level of assessment/audit should reflect the criticality of the supplier/sub-contractor as determined by a risk-based approach. Where the procurement function identifies that materials/services can only be procured from a single source supplier, then this should be highlighted within the management process for inclusion;
- detail the process for introducing new suppliers/sub-contractors and materials/goods suppliers onto an approved list;
- include a documented approval and sign off process for externally produced BIM Library Objects where applicable;
- require that the company has an approval process for external providers used in BIM and where services, e.g. structural engineering, are procured through a supplier the constructor should state to the supplier the minimum levels of competence required of the person(s) actually providing the service and should ensure that the stated minimum requirements are satisfied;
- determine how external providers are integrated into company policies and procedures, and

- include a monitoring and audit process in place to ensure external providers maintain the required level of performance. Procedures should also detail the assessment/audit process to determine how constructor verifies the ongoing suitability of existing suppliers/sub-contractors.

References and suggested requirements:
Project Assignments and responsibility matrix.
PAS91:2013 Pre-Qual. questionnaire completion.
Risk Register.
Supplier approval procedure.
PAS91 Validation and verification assessment: Level 1 Verification and assessment of supplier.
Level 2 – Validated assessment.
Level 3 – Self Assessment.
Supplier criticality listing.

5.5 Assessment of Risk Management

BIM Service Providers shall establish and maintain procedures for the on-going identification and assessment of business and contract/project/activity risks. BIM Service providers shall ensure that the identification and implementation of necessary control measures are appropriate to the level of risk under consideration.

Identified risks shall be recorded in a risk register which should be regularly reviewed. Where project specific risks are assessed separately to generic risks, the process should identify project specific risks which could also be included in a generic risk register.

BIM Service Providers methodology for risk identification and assessment shall:-

- be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive;
- include, where appropriate, the assessment of how risks change or can change over time;
- provide for the classification of risks;
- identify those risks that are to be avoided, eliminated, transferred or controlled by management processes;
- identify how risks are escalated and the mechanism for doing this and how risk controls are communicated within the business;
- include a system for the identification and management of more generic processes, people, equipment or suppliers that are critical to the continuity of the business;
- be consistent with the scope of BIM Provider;
- provide for the monitoring of required actions to ensure effectiveness and timeliness of implementation;
- ensure that risks relating to the use of subcontractors/external consultants are identified, evaluated and mitigated;
- ensure lessons learned from previous projects/contracts are captured and used to inform the risk evaluation going forward, and

- document risk related information and ensure it is kept up to date.

An integrated risk process should include:

- A risk assessment which is performed at the pre-bid stage and at the project award stage prior to the commencement of work;
- Risks defined at the project award stage that should be subject to periodic review and update throughout the project;
- A risk register which records the defined risks and the identified mitigation measures together with their target implementation dates and their subsequent close out;
- Be subject to ongoing review;
- Use a standardised assessment framework;
- Provide for the classification of risks;
- The output of the risk assessment process and associated controls should be input into the following processes to mitigate risks:
- The determination of the design, specification, procurement, transport, construction, inspection and maintenance of products;
- Identification of adequate resources including staffing levels and sub-contractors, and
- Identification of training needs and skills.

The BIM Provider's overall risk management framework which should conform to the following:

- Communication of their risk mitigation measures to all appropriate personnel;
- Quantification and measurement of their risks;
- Routine reporting of risk;
- Have procedures to escalate risk related issues to Board level as necessary;
- Have processes to learn from unforeseen events, and
- Document and keep their risk related information up to date.

References and suggested requirements:
Certification – Risk assessment
Reference: Health and safety (CPIx Protocol: Client's Checklist)
PAS1192-5:2015
BS8536-1:2015

5.6 Assessment of Process Control

BIM Service Providers shall establish and maintain documented end to end procedures and process maps for their BIM processes. BIM Providers will be assessed with reference to all current BIM Level 2 standards as applicable to the Provider's scope, work area and Tier level. Example assessment agenda can be provided for applicants to indicate the areas of assessment prior to the gap analysis.

For all BIM Level 2 scopes, competencies, controls and procedures are required to be in place to satisfy the requirements of ISO 19650-2, plus all other relevant BIM standards, protocols and guides, as applicable to the Part Designation and type of BIM involvement in which the Provider engages (for example, Appointing Party or Lead Appointed Party Project Delivery Providers will be assessed in greater detail on the requirements of BS8536 and PAS1192-3 than an Appointed Party Provider; however, a level of basic competency and awareness of BS8536 and PAS1192-3 will be required of all Appointed Party providers).

The presence and appropriate level of competencies and roles to fulfil the ISO19650-2 Annexe A requirements for Information management roles which were formerly identified more definitively Under PAS 1192 series as: Project Delivery Management, Lead Designer, Task Team Manager, Task Information Manager, Interface manager, Information Originator and Soft Landings Champion (BS8536) will be assessed as applicable

The assessment process will assess compliance with particular focus as below:

Appointing Party/Lead Appointed Party as applicable to role:

- Processes to capture EIR requirements utilising Project Information Requirements (PIR) and including the requirements of BS8536-1
- Processes to include the setting up and management of a CDE.
- Processes to assess the supply chain
- Processes for the production of pre and post contract BEPs, MIDPs, TIDPs,
- Processes to satisfy the requirements of PAS1192-3:2014, including the interface of PIMs to AIMs,
- Processes to satisfy the requirements of PAS1192-5 where applicable
- Competencies to fulfil the ISO 19650 -2 Annexe A detailed formerly as requirements for Information management, Project Delivery Management, Soft Landings Champion and Lead Designer, Task Team Manager, Task Information Manager, Interface manager, Information Originator (as applicable)
- Processes for the verification of BIM data

Tier 2 Project Delivery Providers, as applicable to role:

- Processes to include the requirements of EIRs in BEPs and TIDPs,
- Processes to include the setting up and management of models and interface with a CDE.
- Processes for the production of pre and post contract BEPs, MIDPs
- Processes to produce supply chain information and feed up including lower tier information

- Processes to satisfy the requirements of PAS1192-3:2014
- Processes to produce TIDPs
- Competencies to fulfil all Project information management function requirements formerly defined as Task Team Manager, Task Information Manager, Interface manager, Information Originator (as applicable)
- A level of competency and awareness of PAS1192-3 and PAS1192-5 as applicable
- Processes for the verification of BIM data

References and suggested requirements:
ISO 19650-2,
PAS1192-3:2014,
PAS1192-5:2015
BS8536-1:2015,
BS8536-2:2016,
BIM Protocol
PAS91:2013, Table 8 etc.
Supplier Info technology assessment form;
Supplier resource assessment form;
Supply chain capability summary form.
EIR;
BEP,
CDE.
MIDP;
TIDP,
Compilation of Master Information Delivery Index.
Project assignment and responsibility matrix.

5.7 Assessment of Process Monitoring and Improvement

Providers are required to have an appropriate Quality Management System which covers the scopes of their Accreditation. Through their Quality Management Systems, BIM providers shall monitor their compliance with technical and scheme requirements including:

- an internal audit process;
- a regular and documented review process;
- a procedure for corrective and preventative actions including evaluation, implementation and effectiveness review, and
- continuous improvement to its processes and procedures in terms of suitability, adequacy and effectiveness.

To demonstrate that their processes are operating effectively, BIM Providers shall establish a set of measures to be used as process performance indicators. These measures should be appropriate to the scale and complexity of the

BIM Providers operation and should include appropriate feedback on activities performed by suppliers where these have a material impact on the BIM Providers activities or can cause risk to the BIM Providers reputation.

Performance monitoring arrangements shall include activities where significant business or project risks have been identified.

Key Performance Indicators (KPI's) derived from the BIM Providers activity measurement framework should be regularly reviewed by those responsible for the offsite process delivery. Performance trends should be routinely analysed and whenever performance is not to tolerated levels, a root cause analysis should be undertaken and an action plan initiated.

End customer satisfaction/feedback should be included in the performance measures.

BIM Service Providers shall have processes for identifying and, where appropriate, implementing opportunities for continually improving their processes and procedures. Improvement plans should be targeted at areas with the greatest potential benefits.

APPENDICES

Appendix A. Accreditation Management Arrangements

Compliance with the requirements specified in this document will enable Building Information Modelling (BIM) Providers to gain and maintain scheme Accreditation. This document provides guidance on how the scheme Accreditation operates and the actions that will be taken in the event of non-compliance with the scheme requirements.

The contractual terms and conditions against which the scheme will operate will be those issued by Lloyd's Register (LR) EMEA when a formal quotation is sent to the BIM Provider, following receipt of a completed application form.

A.1. Accreditation Process Overview

Once a BIM Provider has been assessed as satisfactorily performing the activities for which approval is sought, a certificate of Accreditation will be awarded which details the scope of approval. At this stage the name of the BIM Provider, along with the scope of works for which they are approved, will be added to the list on the Symetri and Lloyd's Register BIM websites.

Once a BIM Provider achieves Full Accreditation, the BIM Provider will be able to display the quality mark associated with the scheme.

A.2. Approval Process

The approval process has two key stages. These are:

a) GAP Analysis
b) Assessment against a live BIM project leading to Accreditation

To assist BIM Providers preparing for assessment, especially those who are new to scheme Accreditation, a gap analysis is usually undertaken; provided by Symetri Ltd.

To complete the assessment process, BIM Providers need to secure work that is suitable for assessment as a live BIM project and relates to the scope for which they are seeking Accreditation.

Having gained full Accreditation, the work and processes of the BIM Provider are monitored by means of regular surveillance visits.

A.3. Gap Analysis

To assist BIM Providers preparing for assessment a gap analysis is usually undertaken. The Gap Analysis is completed by Symetri alongside the BIM Provider to examine the overall status of an applicant's processes, systems and competencies.

The gap analysis will assess the existing arrangements against ISO 19650-2 and other related BIM standards as may be applicable to the scope of work against which the provider is being assessed.

The analysis focuses primarily on high level system design in order to identify significant areas of weakness. The assessment will represent a 'walk through' of systems, competency and risk processes and will comprise of discussions and interviews with key staff. This will provide an independent view of areas where further development work may be necessary to meet Accreditation requirements. There will be no requirement for a formal review of documentation or any form of verification during the gap analysis phase of the assessment.

The completion of the gap analysis will enable Symetri to estimate realistic timescales for the full implementation audit.

Should the gap analysis produce any major deficiencies against the requirements of the scheme, it is important that a period of consolidation and maturity of revised processes and systems is completed before arranging a full implementation audit against a live BIM project.

Where a BIM Provider has yet to recruit key BIM staff at the gap analysis stage, they shall demonstrate that their recruitment strategy and competency framework will ensure that competent personnel are in position before any work is commenced.

The findings of the gap analysis will be reported verbally by Symetri on completion of the visit. A documented report will follow within 10 working days of the gap analysis completion. The report has a standard format which defines the scope of the assessment, reports findings and the assessor's conclusions and recommendations regarding the BIM Provider's readiness for the next stage of the assessment. At this stage of the Accreditation process the applicant may have their details added to the Symetri and LR EMEA BIM website as 'Under Assessment'.

A.4. Assessment Against a Live BIM Project Leading to Accreditation

Award of Accreditation requires that procedures, processes and competencies described and assessed at the gap analysis can be further assessed by LR as being fully implemented. Accreditation is awarded where it can be demonstrated as operating effectively whilst performing a live BIM project.

The BIM Provider shall be fully prepared and ready for the assessment by the LR Assessor. The BIM Provider shall ensure the availability of appropriate personnel, BIM related documentation and BIM project activities for review. Facilities and access to data/sites shall be arranged by the BIM Provider in order that the assessor can evaluate all appropriate workflows and exchanges.

To achieve Accreditation for any particular element of the requested scope, those elements shall be demonstrated by the BIM Provider (or managed by the BIM Provider) and witnessed and assessed by the LR assessor. Where

work covering the full range of the BIM scope is not available for assessment, Accreditation will not be granted until the full scope has been assessed.

If major deficiencies are identified during this phase of the assessment then these will be required to be addressed, closed out and verified as such before Accreditation is recommended. Should minor deficiencies be identified then Accreditation may proceed and progress of deficiency close out will be reviewed during the first surveillance visit.

The findings of the full assessment will be reported verbally on completion of the visit and an updated and technically reviewed report will follow within 10 working days of the assessment.

Subject to satisfactory performance throughout the Accreditation process and the completion of the surveillance programme, Full Accreditation to the scheme remains valid for a period of 3-years after which a reassessment will be carried out.

In the event that an assessment against a live BIM project cannot be undertaken during the audit phase then subject to there being no major deficiencies identified, partial Accreditation may be awarded with uplift to full status achieved when a live BIM project is available against which assessment can be made.

The Surveillance visit programme will be agreed at the time of registration and will span the 3-year registration validity period.

Following completion of a satisfactory assessment, the recommendation for Accreditation is made which is confirmed via the completion of a technical review of the final report. The Symetri and LR EMEA BIM websites will also be updated to show Accreditation status.

On acceptance of a surveillance programme, LR will issue an Accreditation Certificate which will be valid for the term of the Accreditation. The certificate will remain the property of the LR EMEA and shall be returned to them on their request.

A.5. Accreditation Assessment Fees

BIM Providers will receive a proposal following their submission of a completed application form (supported by Excitech). Once confirmation of acceptance of the proposal has been received by LR, a Request for Services (RFS) will be completed by LR and issued to the applicant for their endorsement and return to LR. The RFS signed by the BIM Provider (the client) will serve as the contract for the assessment which may then progress at the earliest opportunity subject to mutual availability.

Following completion of the appropriate evaluation stage, the client will be invoiced according to the extent of assessment completed according to the terms outlined in the RFS.

Note: Dependant on credit ratings, in some cases, pre-payment may be required. If this is the case the BIM Provider will be notified.

A.6. Monitoring of Accredited BIM Providers

Having gained Accreditation, the adherence to approved process will be monitored through routine surveillance visits performed on the BIM Provider. LR will also react to reports of poor performance of the BIM Provider by client organisations.

Surveillance visits and any extra visits needed to investigate substantiated reports of poor performance will be chargeable to the BIM Provider.

A.7. Surveillance Visits

LR will verify through surveillance visits and periodic reassessment that the BIM Provider has established, implemented and maintained procedures processes and competencies which provide for a consistent quality of BIM service provision and which conform to best practice.

LR will apply a robust, consistent and transparent assessment regime which will focus on key criteria to ensure that:-

- A consistent level of competency for key project delivery roles are maintained;
- Project risk management processes are comprehensive and dynamic, and
- Delivery teams have ownership of assigned tasks and schedules.

A.8. Surveillance Visit Programme

The BIM management processes shall be subject to surveillance audit at least once per year during the 3-year Accreditation period with the first surveillance visit held within six months (maximum) of Accreditation being awarded.

Periodicity of surveillance will be based on:

- Number of BIM scopes held;
- Levels of activity and number of operational bases;
- BIM Provider's previous experience in this field;
- Assessed performance;
- Complaints, and
- Results of internal and external audits.

LR may, at its discretion and subject to reasonable notice, vary the interval between surveillance visits based upon the results of BIM Provider's audits.

Findings of surveillance visits shall be documented and any deficiencies recorded shall be highlighted to the BIM Provider. Appropriate timescale for the close out of deficiencies should be agreed.

A.9. Surveillance Visit Arrangements

Arrangements for routine surveillance visits will be agreed between LR and the BIM Provider in accordance with the surveillance schedule specified at the time of Accreditation.

Where concerns regarding the performance of the accredited BIM Provider are raised by a client organisation, additional investigation surveillance visits will be immediately arranged. Following the investigation, the BIM Provider will be required to introduce immediate remedial action and cover the cost of the investigation.

LR will advise the accredited BIM Provider annually of the surveillance visit schedule.

Where a surveillance visit is cancelled within the notice period an abortive visit charge will be made.

A.10. Non Compliance with Surveillance Visit Schedule

In the event that no live BIM projects are undertaken following the project against which Accreditation was granted, then after a period of 1-year, the Full Accreditation will be downgraded to Partial Accreditation which will be reviewed annually or until a BIM Project is undertaken. A notification of a live BIM project should be advised to LR in order that a surveillance visit may be resumed with a view to reinstating to Full Accreditation.

A.11. Surveillance Visit Payments

The fee for the 3-year surveillance visit programme will be agreed immediately following Accreditation via a Request for Service (RFS) and will be invoiced following each visit during the 3-year term of Accreditation.

A.12. Investigations and Removal of Accreditation

Accreditation shall be subject to cancellation or amendment by LR if the accredited BIM Provider:

- Is found to have made false claims within the application for Accreditation which are considered to impact on its integrity and on-going performance;
- Fails to complete within the agreed timescales and to the satisfaction of LR required remedial action(s) identified during routine surveillance or any other investigation;
- Becomes bankrupt or insolvent;
- Performs consistently below the standard required or demonstrates an inability to continue to comply with the criteria set out in the scheme requirements;
- Makes use of the scheme and/or the quality mark or logo in a manner which, in the opinion of LR, is likely to bring the scheme into disrepute, and
- Fails to make arrangements for surveillance visits in accordance with the agreed programme.

A.13. Investigations

Where LR is notified that unsatisfactory work or a failure to comply with the scheme requirements has occurred and the matter is disputed by the accredited BIM Provider, LR will carry out an investigation.

Where, as a result of the investigation, the performance of the accredited BIM Provider is identified as failing to comply with the scheme requirements the BIM Provider shall, at its own expense, take the required remedial action within the timescale specified by LR.

LR will notify the complainant client organisation of the outcome of the investigation.

A.14. Removal of Accreditation

The Accreditation body shall notify the BIM Provider in writing of the intention to cancel certification, fully detailing such reasons for its action. Unless the nature of the poor performance merits immediate action the process will be in two stages. Firstly, the accredited BIM Provider will be notified that their Accreditation is being suspended and given a limited time to address the identified issues, giving rise to the suspension. If the non-conformances are not satisfactorily addressed during the allotted time period and steps are not taken to prevent a reoccurrence the Accreditation will be cancelled and the Symetri and Lloyd's Register EMEA BIM websites will be updated with removal of Accreditation.

Once Accreditation has been cancelled then re-Accreditation will be subject to a full re-assessment of the BIM Provider.

A.15. Appeals, Complaints and Disputes Concerning Accreditation

If the BIM Provider wishes to object to action taken, including withdrawal of Accreditation, they shall, within 21 days of the issue of the notification to them, give notice in writing to LR of their objections setting out clearly the grounds for an appeal.

Any such appeal will be assessed by a panel within the Accreditation body, independent of those members of the Accreditation Body associated with the original withdrawal action.

The results of the review will be communicated to the BIM Provider in writing, detailing clearly the basis for the decision.

If the decision is not to the satisfaction of the BIM Provider then they can appeal to the Scheme Advisory Panel which will be furnished with the basis for the original Accreditation withdrawal and the findings of the appeals review. The Scheme Advisory Panel shall be the final arbiter of all such appeals.

The BIM Provider and LR shall bear their own costs associated with any appeal, regardless of the outcome.

Re-instatement of Accreditation will be effected under the conditions prescribed by LR's review or that of the Scheme Advisory Panel, should the finding be that the Accreditation withdrawal was not warranted.

Alternatively, if the appeals process finds the Accreditation withdrawal to be the correct course of action then re-instatement of the BIM Provider would entail a full re-evaluation.

A.16. Re-certification

At the end of the 3-year Accreditation term a reassessment will be undertaken.

The scale of this reassessment will take account of the performance of the BIM Provider during the period of Accreditation. If the BIM Provider has performed satisfactorily over the Accreditation period, their Accreditation is likely to be subject to a 'light touch' assessment. However, if the work carried out by the BIM Provider is limited, or if a number of audit reports identify major deficiencies or a growing trend of minor deficiencies, an appropriately more in-depth level of re- assessment will be required.

LR shall give the accredited BIM Provider three months' notice of the expiry of their Accreditation.

Following the reassessment the BIM Provider will be given a month to provide the necessary evidence to close-out identified deficiencies. After this period of time the Accreditation Body will issue a report recommending re-Accreditation. A Technical review of the finalised report will be completed prior to re-accreditation.

Having been satisfactorily re-assessed and a surveillance programme agreed, the BIM Provider will be accredited for a further 3-year period.