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THE ISO 19650 SERIES

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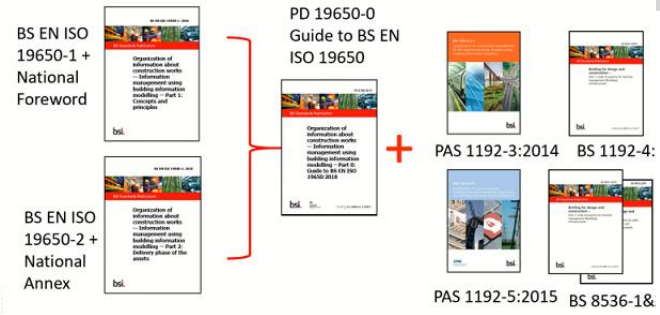
Abstract - This research has been undertaken to understand the ISO-19650 and its Parts in Architecture, Engineering and Construction Industry worldwide. Today, most of the biggest projects are designed under a BIM process. Being able to define a standardized process for information delivery means that it's no longer a time to convince others of why BIM has to be used, but rather of how in order to make BIM profitable for all stakeholders of a project in terms of quality and in terms of revenue. The International Organization for Standardization (ISO) published ISO 19650 in December 2018 as the standard for organizing information about construction works. International standard ISO 19650 contributed to its development, helping to orient it for use in a BIM construction project – from the very beginning through to final delivery. It is oriented for the benefit of all, including small and medium-sized enterprises. The appropriate implementation of ISO 19650 opens the road for Architectures, Engineers, Contractors, and Operators towards the revolution of the construction industry 4.0.

Keywords — ISO 19650, BIM, Building Information Modeling, AEC industry, international Standard, Digitalization, Construction Technology

I. INTRODUCTION

The ISO 19650 is a series of international standards that define the collaborative process for the effective information management over the whole life cycle of a built asset using Building Information Modelling (BIM). The first part of the series was published in December 2018. This document is recommended for everyone to manage information including exchanging, recording, versioning, and organizing. It can be adapted to assets or projects of any complexity & scale.



. Figure no. 1- International BIM Standards

II. WHY ISO 19650?

Most of the time, project members have different interpretations about a certain topic. Also, International projects involve different standards on different projects which leads to an increase in confusion.

The ISO 19650 series empowers various teams to limit inefficient exercises and increment consistency around cost and time. This is accomplished through a common approach to deal with the management of information.

The ISO 19650 Series is comprised of:
ISO 19650-1:2018 Concepts and principles
ISO 19650-2:2018 Delivery phase and assets
ISO 19650-5:2020 Security-minded approach to information management.
ISO 19650-3 Operational phase and assets-Under Development
ISO 19650-4 Information exchange- Under Development

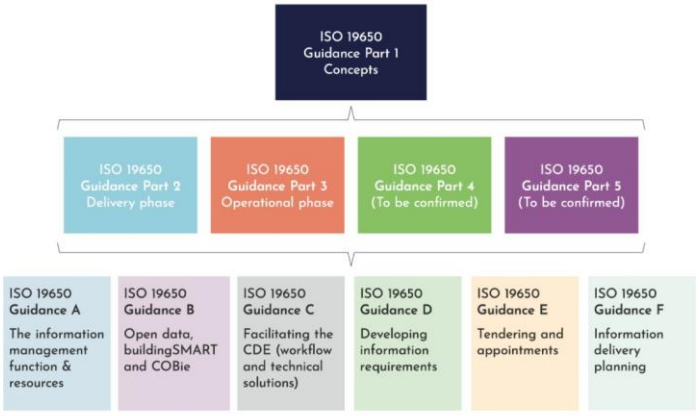


Chart 1- BIM Framework publishes updated Guidance Informaton Management according to ISO 19650

III. WHAT DOES ISO19650 CONTAIN?

The ISO 19650 explains a set of processes for information delivery in the cycle of design, construction,

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and handover including those relating to tasks, roles, and responsibilities, as well as the identification and assignment of accountable parties for each activity and task. It includes: Appointing party and appointed party, Information process to communicate or to share information, Level of information need, All the information must be produced by the concerned parties related to their scope, throughout the project life cycle in CDE format (Common data environment)which is initiated by the lead appointed party & acts as a digital hub for the project and last Delivery team mobilization: It explains us about the Principles for information sharing to be used for container-based collaborative working & concise responsibility matrix is essential.

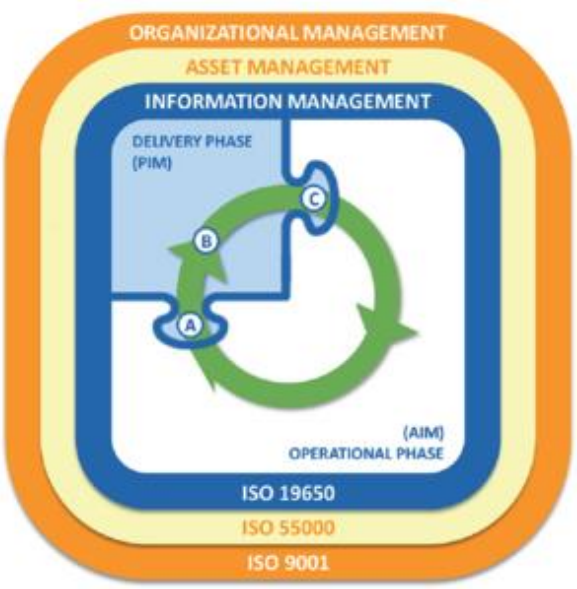

Diagram no.1- Organization of Information about Construction work

IV. ISO 19650-1:2018 CONCEPTS AND PRINCIPLES

FIGURE NO. 2- ISO 19650 GLOBAL OPPORTUNITY

ISO 19650 Part 1 addresses concepts and principles for information management at a phase of development depicted as BIM. This document provides recommendations to all the actors to manage information which includes exchanging, recording, versioning, and organizing of information for all the actors. It is applicable to the entire life cycle of any built asset, including planning, initial design, engineering, development, documentation and construction, day-to-day operations, maintenance, refurbishment, repair, and end-of-life. Additionally, it can be adapted to projects and assets of any complexity and scale.

A few of the Concepts and principles used in this document are as followed:

a) Building Information Modelling (BIM): BIM is the process of creating and managing information for a built asset using a shared digital representation. It integrates structured, multi-disciplinary data to facilitate design, construction, and operation processes of a built asset across the lifecycle, to form a reliable basis for decisions.

b) BIM Execution Plan: It is a comprehensive document that explains the role BIM in the various phases of construction management and how the project delivery team will identify and execute the same.
c) The level of information needed: A structure that describes the extent of information required.
d) Information container: It refers to the unique identification of a file, system, or application storage hierarchy. E.g., chapter or section, layer, or symbol. An information container could be a drawing, a cost plan, etc.
e) Common Data Environment: It is the single source of information and a central repository where all the project information is housed. It is used for collecting, managing, and disseminating project information within the project team throughout the project lifecycle.
f) Organizational Information Requirements (OIR) – OIR are high-level information requirements defined by the asset owner/operator regarding their built assets owned, operated, used, or managed.
g) Asset information requirements (AIR) – AIR is detailed, high-level information which is needed by the organizational for their information requirements.
h) Project information requirements (PIR) – PIR is needed to answer high-level strategic objectives of information within the organization concerning a particular built asset.

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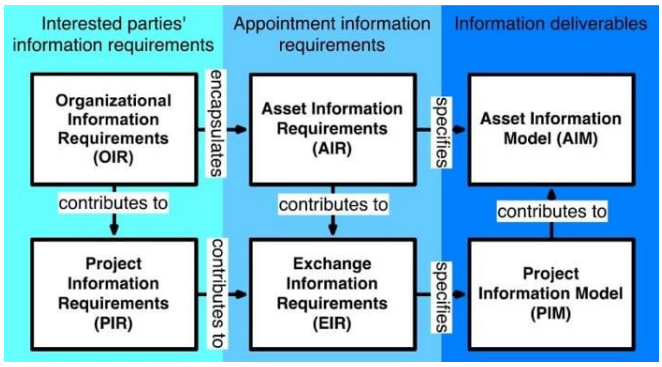

Chart 2- Path of Types of Information Required and deliverables

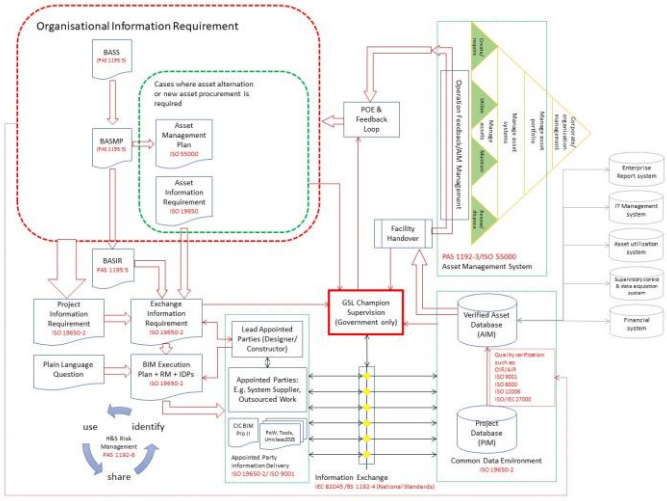

Chart 3 – Mapping Every Documents in the BIM Level 2- Breathe Life into BIM

ISO 19650-2:2018 Delivery phase and assets

Figure no. 3- Information management according to ISO 19650

To successfully implement the ISO 19650 series, the appointing party (for example the client) commences with the statement or would like, ensuring the knowledge necessities area unit clearly outlined at the start of the project alongside however the ideas and principles of knowledge management area unit to be enforced and also the sides that area unit expected. This confirms the categories of knowledge and clarifies however different types of knowledge need to be structured and altered. Management and processes could also be thought of at now and as such a lot as they'll be determined by the appointing party. It's useful for an appointing party to elucidate principal reasons why data is required, to supply extra context to the delivery groups. These concerns area unit then carried across, as acceptable, for each appointment that the appointing party initiates across the project. Each prospective lead appointed party (for example designer, contractor) responds to those data necessities in their (pre-appointment) BIM execution arrange which includes their statements of capability and capability to use the ISO 19650 series. The appointing party needs to believe the contents of the BIM Execution arrange once choosing the lead appointed party. Wherever prequalification is used then this forms the initial stage of the appointment method, before the pre-appointment BIM execution arrange. During mobilization, the appointing party (for example the client), the lead appointed party (for example the contractor), and also the appointed party/parties (for example the subcontractors) collaborate to agree on key roles and responsibilities and to agree on a knowledge delivery arrange (in the form of the BIM execution arrange, the master data delivery arrange and also the task data delivery plans) that outlines coordination and delivery mechanisms. Briefings and training guarantee everybody has a united level of ability and an understanding concerning what's needed. These parties then establish the extent of knowledge would like needed at each project stage and approval, authorization, and acceptance procedures. This allows the configuration and implementation of acceptable data management systems. These data systems should give and believe the requirements of people (the project team and stakeholders), the tactic of knowledge delivery, and also the selection and use of acceptable technologies needed for delivery. At the tip of every project stage (and doubtless at intervals a project stage) assurance is as long because the knowledge necessities are met fitly. It might be doable to undertake to the present through a mixture of manual and automatic strategies. Relevant quality data, assembled throughout the appointment/project, is two-handed over at completion to inform operation and maintenance in an exceedingly timely fashion.

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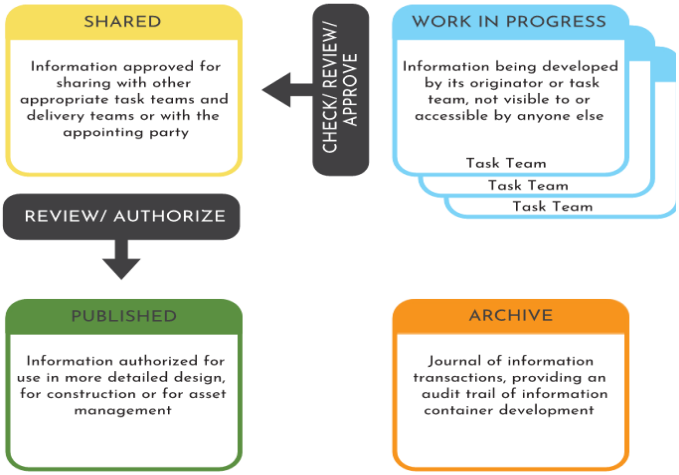

Figure no. 4- AIM Group Newsletter Q4_2020

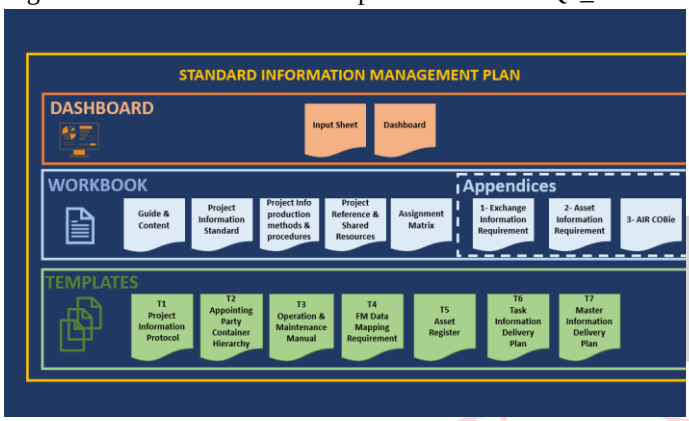

Figure no. 5- BIM Level 2 Guidcance

ISO 19650-5:2020 Security minded approach to information management


INTERNATIONAL STANDARD

ISO 19650-5

First edition 2020-06

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling —

Part 5:
Security-minded approach to information management

Organisation et numérisation des informations relatives aux bâtiments et ouvrages de génie civil, y compris modélisation des informations de la construction (BIM) — Gestion de l'information par la modélisation des informations de la construction —
Partie 5: Approche de la gestion de l'information axée sur la sécurité

ISO

Reference number
ISO 19650-5:2020(E)

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Figure no. 5- Information management according to ISO 19650

The ISO 19650¬5:2020 Organization and digitization of information about structures and structural designing works, including building information displaying (BIM) – Information the board utilizing building information demonstrating – Part 5: Security¬ disapproved approach to information the executives is a specification for security ¬minded information the board.

It provides a system to help organizations in understanding the key weakness issues and the idea of the controls needed to manage the resultant security dangers to a level that is passable to the important parties. The expanding utilization of computerized technologies, including Building Information Modeling (BIM), in the plan, construction, manufacture, operation and the board of resources or products, just as the provision of administrations, inside the constructed climate, is already having a transformative impact on the parties included, a pattern which is probably going to continue, and prompting:

• expanded degrees of collaboration, inside and across sectors

• More transparent, open methods of working

• Capture of continuous information about resource use and condition

• And sharing and utilization of advanced information an and information.

ISO 19650¬5:2020 is a specification for security disapproved information the board. It provides a structure to help organizations in understanding the key weakness issues and the idea of the controls needed to deal with the resultant security dangers to a level that is okay to the pertinent parties. Its utilization ought not at all subvert collaboration or the advantages that BIM other collaborative work techniques and advanced technologies can produce. It determines the principles and necessities for security¬ disapproved of the board of touchy information that is obtained, created, processed and put away as part of, or according to, a drive, project, resource, product or administration. Implementation of the actions illustrated in the standard will help with lessening the danger of the misfortune, abuse or modification of delicate information that can impact on the wellbeing, security, and strength of assets, products, The assembled climate, or the administrations provided by, from or through them. The actions can also be applied to protect against the misfortune, robbery or divulgence of voluble commercial information and scholarly property just as personal information. Further, implanting good security can upgrade worldwide positioning and can give competitive advantage to commercial endeavors by building trust with their stakeholders and customers in the administrations and products they provide. ISO 19650¬5 ought to be applied by any organization engaged with the utilization of information the executives and technologies in the creation,

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plan, construction, manufacture, operation, the board, modification, improvement, destruction or potentially reusing of resources or products, just as the provision of administrations, inside the fabricated climate. It will also be of interest and significance to other organizations wishing to protect their commercial information, personal information, and scholarly property.

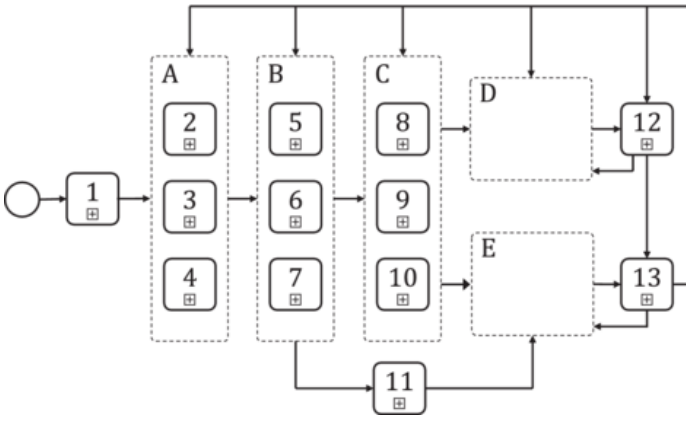

Figure no.6-Key Information

Key

A	coordinated and consistent strategies and policies
B	coordinated and consistent plans
C	coordinated and consistent information requirements
D	activities undertaken during the operational phase of assets
E	activities undertaken during the delivery phase of the asset (see also ISO 19650-2)
1	organizational plans and objectives
2	strategic asset management plan/policy (see ISO 55000)
3	security strategy
4	other organizational strategies and policy
5	asset management plan (see ISO 55000)
6	security management plan
7	other organizational plans
8	asset information requirements (AIR)
9	security information requirements (which form part of the security management plan)
10	organizational information requirements (OIR)
11	strategic business case and strategic brief
12	asset operational use
13	performance measurement and improvement actions
Note	No order is implied by the numbering in A, B and C.

V. CONCLUSION

ISO 19650 is not just about contract clauses and BIM Authoring software. The ISO 19650 series provides a foundation of terminology, standards, processes and workflow for teams to all speak the same language when it comes to BIM and Information Management.The value proposition of adopting BIM according to ISO 19650 is the same as proposition for BIM level 2. The publication addresses the new ISO 19650 standards and their relevance to the AECO industry. It describes the beneficial outcomes of using them within the BIM approach, and from a project management perspective. It highlights the benefits of lowering risk and reducing financial losses which are possible where reliable project information is available in a structured, re-usable form and where it is efficiently shared. It illustrates how, by managing the ownership and liability of project data, project managers can stay in control during the whole lifecycle of assets, including operations and maintenance, experiencing less contradiction or misinterpretation of data

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