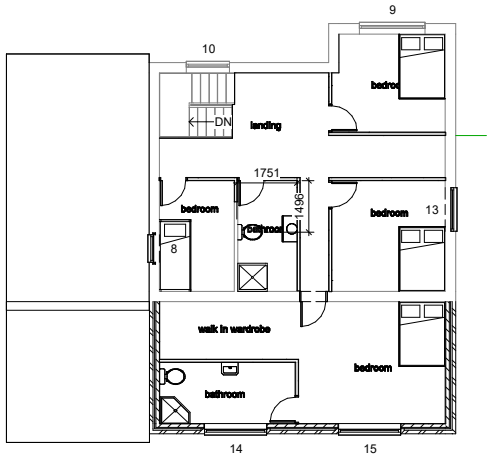

Construction projects require mass amounts of information, this data needs to be efficiently stored and organised in order for the project to run smoothly and be successful. There are a huge variety of ways of doing so and many different software that can be used to build a property which means that it can be extremely difficult to organise the data. With the use of a common data environment which is a centralized platform teams have the ability to use the most up to date information and users can collaborate and manage information and data throughout the lifecycle of a construction project. A CDE is a cloud-based space which can have all the necessary information to do with a construction project which can be accessed by any permitted project participants, depending on their authorisation. The CDE is essential for the effective and efficient implementation of BIM processes and technologies. A construction data environment will include all information to do with the production of the project as a part of the building information modelling (BIM), it will retain information such as project contracts, schedules, graphical models and non-graphical assets and the information within will be available to anyone to anyone with permission from any point of the project's lifetime. The CDE will also store archived state information. As all information to do with the project is stored within the CDE it ensures that if there is a legal dispute at any point then there will be the relevant information easily at hand. Moreover this information could also help to inform for any maintenance required to the build and help with lessons learnt throughout the completion of the project. The CDE acts as a centralized hub for all information, without this details become unclear and information can be unreliable or interpreted incorrectly. This can potentially cause higher project costs and delays with the time of construction. When using a CDE firms are able to utilise the software to have all of their necessary information together under one roof which can be then easily accessed by any of the competent workers. This is extremely beneficial as it means that the whole project team can easily access and share information to do with the build resulting in enlarging the collaboration potential between teams this benefits the rate of work flow and prevent any previous outdated and time consuming methods of sharing work this is because the simplicity of sharing information is that less time is spent between project members sharing information and the difficulty of unorganised communication is removed thus preventing misinterpretation of information, misunderstandings during the design and reducing general errors meaning better time efficiency, ultimately also resulting in savings in labour costs. Another benefit of the use of CDEs is that they include version control features, this tracks all stages of the project and allows the permitted users to view any changes made to the plans and the any information which has been changed. As the workflow is also not a linear one-way process, Information can pass between WIP and shared states several times before being eventually published. As the workers are able to view the previous plans prior to altercations which have been made then if a new person to the project wants to make any changes they then have the ability to get a better understanding of the project. 12dsynergy stated ‘The CDE workflow is a gated process where transition from one state to another is subject to approval and authorisation at each information container level.

Access is controlled at each State by the CDE solution, ensuring the right people have the right access to the right information at the right time. This safeguards against the misuse of information, such as draft information being used for coordination or decision making.’ The project administrators can also protect information by allocating another workers ability within the software by defining the users roles and permissions further preventing any errors. As well as this CDEs utilise audit trails allowing the administrators to view all activities taken place within and who had accessed made any altercations at any point of the projects lifecycle, the administrators are in a position which allows them to not only inspect who made any altercations but also who approved what and who was authorised to access the work and who has accepted certain stages of the build. This further improves accountability and transparency thus helping reduce errors, any conflicts and misunderstandings during the design with these factors in place there is an extreme drop with potential risks for the project. In addition to this, the information within the CDE can be client shared which can be restricted to them as view only, The Status Code of the information container indicates the specific purpose for which this data is intended to be used. This is advantageous as the customer can keep up to date with the project and they are able to then inspect when they want to.
Furthermore, in order to help prevent any errors while designing a project many CDEs are complaint with regulations and industry standards, this helps to contribute to ensuring consistency and interoperability across various projects and organisations by upholding standardised processes and procedures. An example of this ISO 19650 which is a global standard for using building information modelling to manage information for a built asset's entire life cycle. With the use of BIM authoring tools, there is smooth data transfer between the CDE platform and design software. This enables direct publishing, updating, and synchronisation of BIM models within the CDE environment by stakeholders.

References=

https://www.12dsynergy.com/common-data-environment-guide/?utm_campaign=cde-pillar&gad_source=1&gclid=EAIaIQobChMIhs3L383VhQMVYpRQBh05RgEIEAAYASAAEgKxaPD_BwE