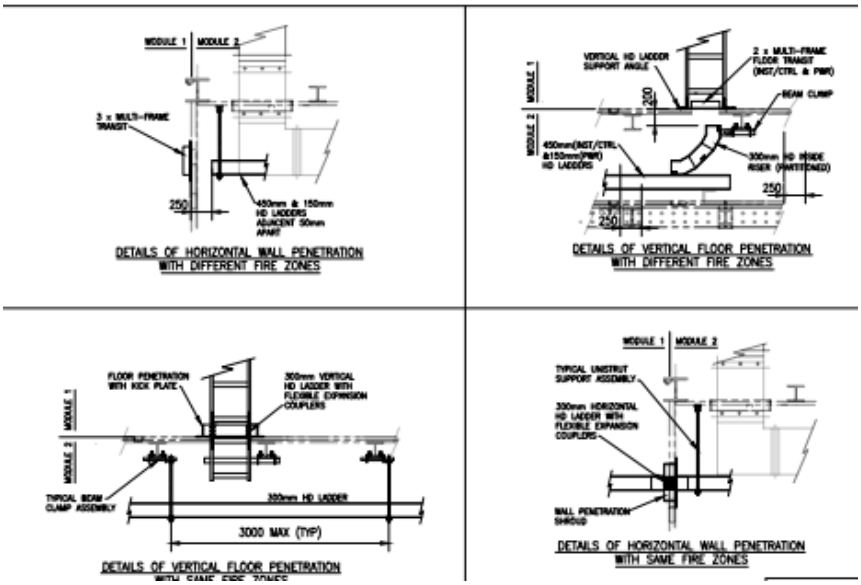
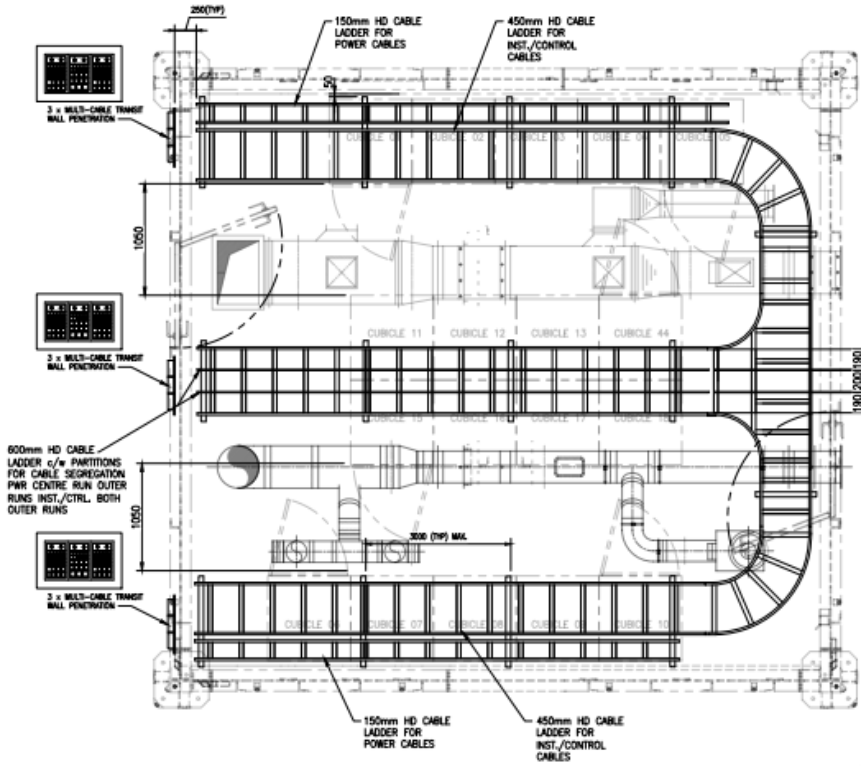
Case Study

Study Area:	**Cable Tray Routing Study**	
Job:	Cable tray routing for SMR (Small Module Reactor)	
Date:	Q2-2023	
Location:	North Sea Platform	
Project Background:	The scope of this study was to carry out different possible options of cable tray routing for SMR (Small Modular Reactor).	
Engineering Challenge:	• Design of Cable tray routing between modules after modules are dispatched from fabrication yard and installed at site. • Cable tray routing between modules with lateral movement. • Cable pulling between modules after installation of all modules at site.	
Scope of Work:	• Design of pre-installed Cable tray routing inside the modules (e.g. Cable route to motor Terminal box, Lighting Distribution board, Switchgears, compressor etc.). • Design of cable tray between modules having lateral movement. • Suggest cable route for power and control cables in cable trays. • Selection of cable tray and its accessories. • Calculate maximum tray loading. • Verify and suggest proper segregation between power, control and communication cables.	

Case Study

Key Findings:	• Based on the client-supplied documents, proposed suitable routing inside and between the modules, Segregation of cables, loading of cable trays and different cable tray accessories. • Cable tray accessories and installation suggested as per BS EN 61892-6, BS EN 61537, IEC 61892-7, IEC 61914, BS 7671.
Engineering Recommendations:	• Low voltage cables should be installed on a separate cable support system from instrument and control cables. However where space is limited, low voltage cables can be installed on the same cable support network as instrument and control cables providing appropriate segregation is implemented. • Medium voltage and High voltages cables must be installed on a dedicated cable support system • The density of cables installed on a cable support system must not exceed the maximum SWL. • Joint positions and span between supports within a cable support system must be selected to maximise the supported SWL.
Sample Routing:	 TYPICAL CABLE LADDER ROUTING LAYOUT FOR SUBSTATION (PLAN)
Final Outcomes:	• Cable tray and cables installed inside the module and between the modules at site as per recommendations. • Lateral movement of trays mitigated as installation recommendations.

Case Study

Key Lessons & Best Practices:	• All the installation for the cable trays and cables should be done as per engineering drawings and as per recommended engineering standards. • When installing cable support systems, the following distances should be maintained: 300mm free space between top of one cable support system edge to the bottom of the next cable support system edge and from the top cable support system edge to the roof. A maximum of 3 metres between supporting brackets. For raised floor, a minimum clearance space of 800mm shall be maintained between top of floor of module and bottom of raised floor. • Flexible expansion couplers shall be fitted within a cable support system at strategic points to compensate for linear movement between adjacent cable support systems. • Cable transit systems are installed as part of a cable support system to ensure the integrity of the fire zone for the module or area is maintained. Cable transit systems are not required where the cable support system is routed through modules of the same fire zone providing the integrity of the fire zones is maintained. • Cable support systems and cables local to an individual module shall be installed at factory.