MMC business process.

Road map based on RIBA framework



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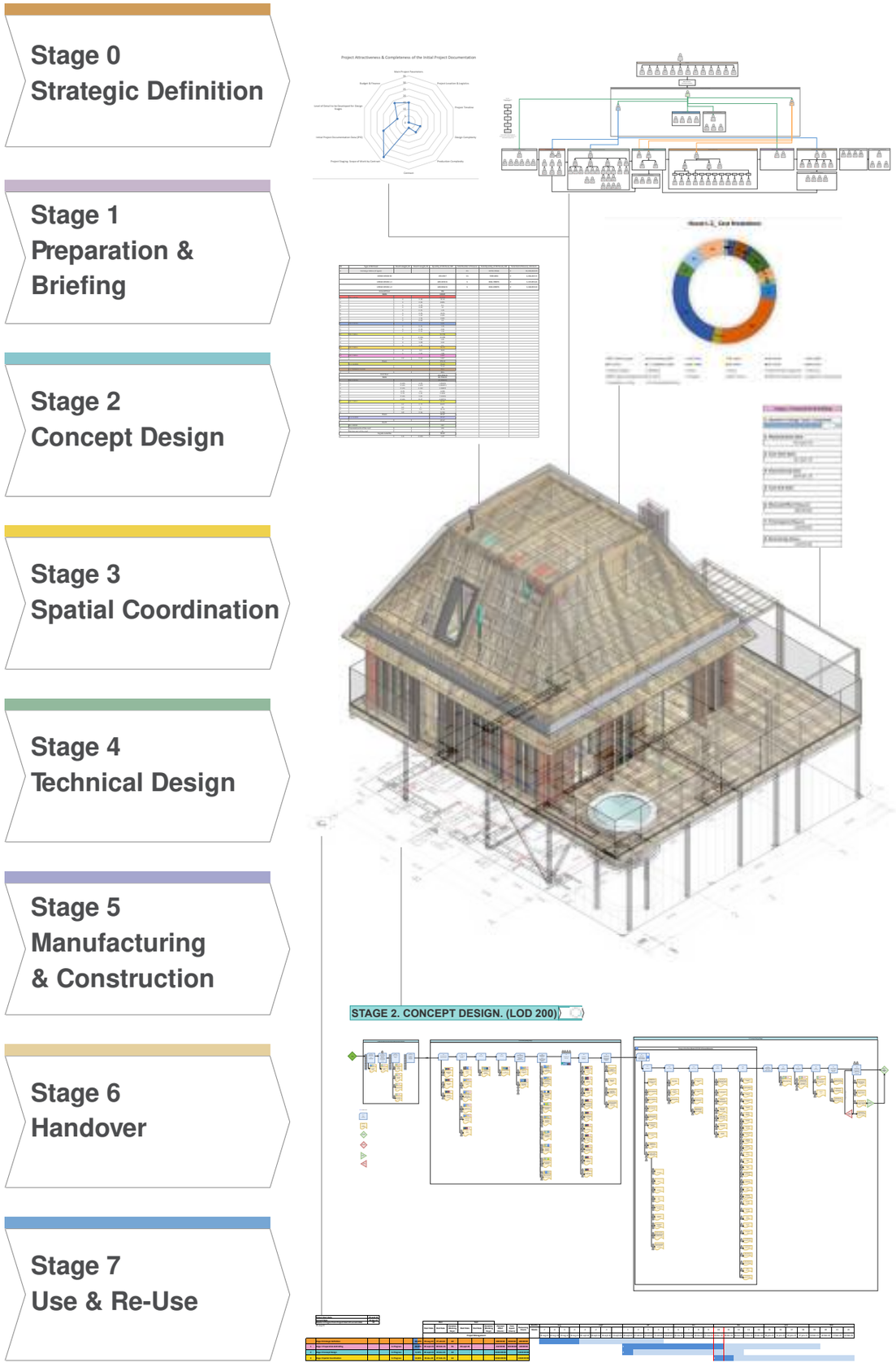
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(Image: IMAGE, 2025)

Riga

2025



Foreword

Systematisation is one of the keys to successful project realization.

Construction industry is complex and very fragmented industry with a lot of parties involved into the process. To align their inputs, expectations, deliverables and outcomes into the one streamlined process with prognosed and measurable results is one of the key objectives of the successful real estate development project.

RIBA framework, UK based on now an international business, engineering and construction approach is one of the great tools to achieve the goal of successful real estate development project, means, to deliver the project on time, on budget, with expected client requirements and good quality.

This brochure highlights the main aspects of RIBA Plan of Work and its stages giving to the client and all the involved parties a general understanding of this framework, its iterative approach and the benefits achieved.

IMAGE applies RIBA framework in our projects and by doing it assists to the clients in their journey to successful real estate development projects with prognosed deliverables and measurable outcomes.

Off-site development process is a complex and, many times, fragmental business with a lot of info missing in between.

In this regard, creating a guide and clear step-by-step road map of the development of modular and off-site projects, from initiation to completion and re-use, is a very important milestone for the entire industry.

Design, construction and real estate development processes are very complex and fragmented, historically, due to many factors, such as involvement of many stakeholders, differences in national codes and regulations, lack of transparency and strategic vision, etc.

As modular development has an aim, in particular, to make real estate development clear, transparent and coherent, to provide time and financial savings to the involved stakeholders, elaboration of this process map is a common interest of all the parties involved. This broshure is a first iteration of MMC business process map and might be used as a starting point for further development.

Ivan Moiseenko, IMAGE CEO

IMAGE
Ivan Moiseenko
Architecture Group
Enterprise

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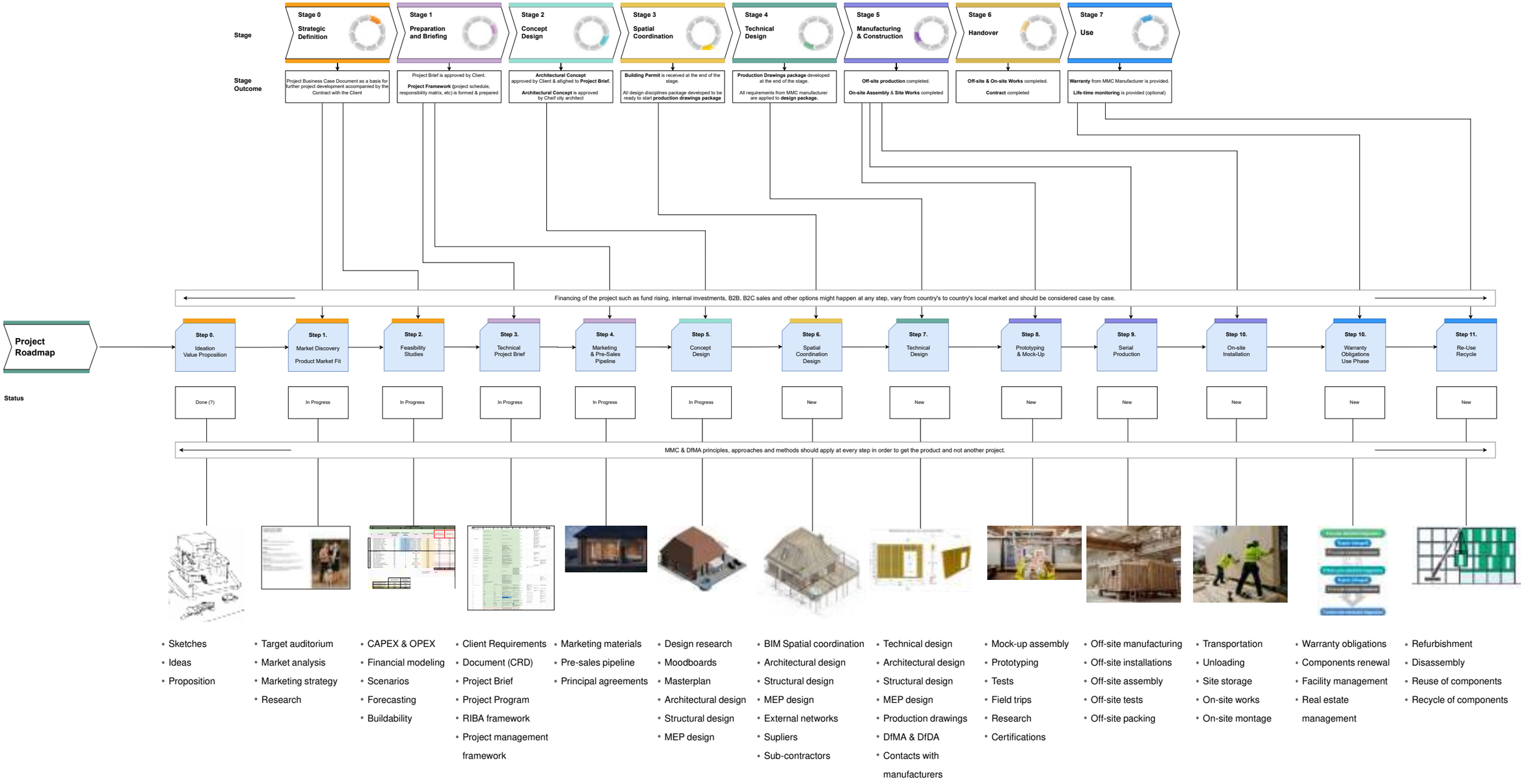
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1. Structured project life cycle.

Key success factor

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Iterative step-by-step project realization



- Sketches
- Ideas
- Proposition

- Target auditorium
- Market analysis
- Marketing strategy
- Research

- CAPEX & OPEX
- Financial modeling
- Scenarios
- Forecasting
- Buildability

- Client Requirements
- Document (CRD)
- Project Brief
- Project Program
- RIBA framework
- Project management framework

- Marketing materials
- Pre-sales pipeline
- Principal agreements

- Design research
- Moodboards
- Masterplan
- Architectural design
- Structural design
- MEP design

- BIM Spatial coordination
- Architectural design
- Structural design
- MEP design
- External networks
- Supliers
- Sub-contractors

- Technical design
- Architectural design
- Structural design
- MEP design
- Production drawings
- DfMA & DfDA
- Contacts with manufacturers

- Mock-up assembly
- Prototyping
- Tests
- Field trips
- Research
- Certifications

- Off-site manufacturing
- Off-site installations
- Off-site assembly
- Off-site tests
- Off-site packing

- Transportation
- Unloading
- Site storage
- On-site works
- On-site montage

- Warranty obligations
- Components renewal
- Facility management
- Real estate management

- Refurbishment
- Disassembly
- Reuse of components
- Recycle of components

Iterative and well documented project development process is a key to project successful life cycle

2. RIBA Plan of Work

Overview

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RIBA Plan of Work 2020

The RIBA Plan of Work organises the process of briefing, designing, delivering, maintaining, operating and using a building into eight stages. It is a framework for all disciplines on construction projects and should be used solely as guidance for the preparation of detailed professional services and building contracts.

Stage Boundaries:

Stages 0–4 will generally be undertaken one after the other.

Stages 4 and 5 will overlap in the **Project Programme** for most projects.

Stage 5 commences when the contractor takes possession of the site and finishes at **Practical Completion**.

Stage 6 starts with the handover of the building to the client immediately after **Practical Completion** and finishes at the end of the **Defects Liability Period**.

Stage 7 starts concurrently with Stage 6 and lasts for the life of the building.

Planning Note:

Planning Applications are generally submitted at the end of Stage 3 and should only be submitted earlier when the threshold of information required has been met. If a **Planning Application** is made during Stage 3, a mid-stage gateway should be determined and it should be clear to the project team which tasks and deliverables will be required.
See Overview guidance.

Procurement:

The RIBA Plan of Work is procurement neutral – See Overview guidance for a detailed description of how each stage might be adjusted to accommodate the requirements of the **Procurement Strategy**.

ER Employer's Requirements

CP Contractor's Proposals

	0 Strategic Definition	1 Preparation and Briefing	2 Concept Design	3 Spatial Coordination	4 Technical Design	5 Manufacturing and Construction	6 Handover	7 Use
	← Projects span from Stage 1 to Stage 6; the outcome of Stage 0 may be the decision to initiate a project and Stage 7 covers the ongoing use of the building. →							
Stage Outcome at the end of the stage	The best means of achieving the **Client Requirements** confirmed If the outcome determines that a building is the best means of achieving the **Client Requirements**, the client proceeds to Stage 1	**Project Brief** approved by the client and confirmed that it can be accommodated on the site	**Architectural Concept** approved by the client and aligned to the **Project Brief** The brief remains "live" during Stage 2 and is developed in response to the **Architectural Concept**	Architectural and engineering information **Spatially Coordinated**	All design information required to manufacture and construct the project completed Stage 4 will overlap with Stage 5 on most projects	Manufacturing, construction and **Commissioning** completed There is no design work in Stage 5 other than responding to **Site Queries**	Building handed over, **Aftercare** initiated and **Building Contract** concluded	Building used, operated and maintained efficiently Stage 7 starts concurrently with Stage 6 and lasts for the life of the building
Core Tasks during the stage **Project Strategies** might include: – Conservation (if applicable) – Cost – Fire Safety – Health and Safety – Inclusive Design – Planning – Plan for Use – Procurement – Sustainability See RIBA Plan of Work 2020 Overview for detailed guidance on **Project Strategies**	Prepare **Client Requirements** Develop **Business Case** for feasible options including review of **Project Risks** and **Project Budget** Ratify option that best delivers **Client Requirements** Review **Feedback** from previous projects Undertake **Site Appraisals** No design team required for Stages 0 and 1. Client advisers may be appointed to the client team to provide strategic advice and design thinking before Stage 2 commences.	Prepare **Project Brief** including **Project Outcomes** and **Sustainability Outcomes**, **Quality Aspirations** and **Spatial Requirements** Undertake **Feasibility Studies** Agree **Project Budget** Source **Site Information** including **Site Surveys** Prepare **Project Programme** Prepare **Project Execution Plan**	Prepare **Architectural Concept** incorporating **Strategic Engineering** requirements and aligned to **Cost Plan**, **Project Strategies** and **Outline Specification** Agree **Project Brief Derogations** Undertake **Design Reviews** with client and **Project Stakeholders** Prepare stage **Design Programme**	Undertake **Design Studies**, **Engineering Analysis** and **Cost Exercises** to test **Architectural Concept** resulting in **Spatially Coordinated** design aligned to updated **Cost Plan**, **Project Strategies** and **Outline Specification** Initiate **Change Control Procedures** Prepare stage **Design Programme**	Develop architectural and engineering technical design Prepare and coordinate design team **Building Systems** information Prepare and integrate specialist subcontractor **Building Systems** information Prepare stage **Design Programme** Specialist subcontractor designs are prepared and reviewed during Stage 4	Finalise **Site Logistics** Manufacture **Building Systems** and construct building Monitor progress against **Construction Programme** Inspect **Construction Quality** Resolve **Site Queries** as required Undertake **Commissioning** of building Prepare **Building Manual** Building handover tasks, bridge Stages 5 and 6 as set out in the **Plan for Use Strategy**	Hand over building in line with **Plan for Use Strategy** Undertake review of **Project Performance** Undertake seasonal **Commissioning** Rectify defects Complete initial **Aftercare** tasks including light touch **Post Occupancy Evaluation**	Implement **Facilities Management** and **Asset Management** Undertake **Post Occupancy Evaluation** of building performance in use Verify **Project Outcomes** including **Sustainability Outcomes** Adaptation of a building (at the end of its useful life) triggers a new Stage 0
Core Statutory Processes during the stage Planning Building Regulations Health and Safety (CDM)	Strategic appraisal of **Planning** considerations	Source pre-application **Planning Advice** Initiate collation of health and safety **Pre-construction Information**	Obtain pre-application **Planning Advice** Agree route to **Building Regulations** compliance Option: submit outline **Planning Application**	Review design against **Building Regulations** Prepare and submit **Planning Application** See **Planning Note** for guidance on submitting a **Planning Application** earlier than at end of Stage 3	Submit **Building Regulations Application** Discharge pre-commencement **Planning Conditions** Prepare **Construction Phase Plan** Submit form F10 to HSE if applicable	Carry out **Construction Phase Plan** Comply with **Planning Conditions** related to construction	Comply with **Planning Conditions** as required	Comply with **Planning Conditions** as required
Procurement Route								
Traditional	Appoint client team	Appoint design team	ER	Pre-contract services agreement	Tender / Appoint contractor			Appoint **Facilities Management** and **Asset Management** teams, and strategic advisers as needed
Design & Build 1 Stage			Appoint contractor		ER / CP: Appoint contractor			
Design & Build 2 Stage			ER	Pre-contract services agreement	CP: Appoint contractor			
Management Contract Construction Management			Appoint contractor					
Contractor-led			ER	Preferred bidder	CP: Appoint contractor			
Information Exchanges at the end of the stage	**Client Requirements** **Business Case**	**Project Brief** **Feasibility Studies** **Site Information** **Project Budget** **Project Programme** **Procurement Strategy** **Responsibility Matrix** **Information Requirements**	**Project Brief Derogations** Signed off **Stage Report** **Project Strategies** **Outline Specification** **Cost Plan**	Signed off **Stage Report** **Project Strategies** Updated **Outline Specification** Updated **Cost Plan** **Planning Application**	**Manufacturing Information** **Construction Information** **Final Specifications** Residual **Project Strategies** **Building Regulations Application**	**Building Manual** including **Health and Safety File** and **Fire Safety Information** **Practical Completion** certificate including **Defects List** **Asset Information** If **Verified Construction Information** is required, verification tasks must be defined	**Feedback** on **Project Performance** **Final Certificate** **Feedback** from light touch **Post Occupancy Evaluation**	**Feedback** from **Post Occupancy Evaluation** Updated **Building Manual** including **Health and Safety File** and **Fire Safety Information** as necessary

RIBA Architecture.com

Core RIBA Plan of Work terms are defined in the *RIBA Plan of Work 2020 Overview* glossary and set in **Bold Type**.

Further guidance and detailed stage descriptions are included in the *RIBA Plan of Work 2020 Overview*.

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RIBA Plan of Work 2020. Overview table



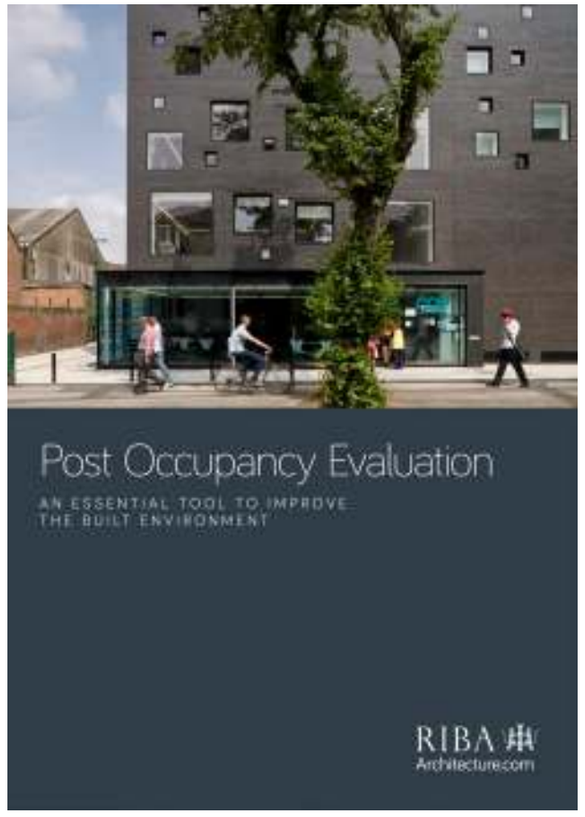
RIBA Plan of Work 2020. Complete Guide

- Detailed description of each RIBA stage
- Documents required on each RIBA stage
- Stakeholders & project roles equired on each stage



RIBA Plan of Work with DfMA overlay

- Implementation of DfMA principles in RIBA framework
- Additional roles & methods required on each RIBA stage



RIBA Plan of Use

- Built Environment Post Occupancy Evaluation

3. RIBA Stages

Main Outcomes

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STAGE 0. STRATEGIC DEFINITION.



Main deliverables.

- Ideation & value proposition
- Business objectives
- Market discovery & Product market fit
- Feasibility Studies
- Client Requirements Document
- Project Risks Assessment
- Marketing Strategy
- Project Road Map
- Previous Projects Analysis
- Project Schedule
- Stakeholder Analysis
- Assessing site conditions and constraints
- MMC & DfMA applications (optional)

STAGE 1. PREPARATION & BRIEFING.



Main deliverables.

- Prepare Project Brief
- Prepare Project Program
- Gathering Initial Permit Documentation (IPD)
- Estimate project workload & team allocation
- Contract preparation
- Project Schedule preparation
- Project Responsibility Matrix preparation
- Set up Project Management framework
- Gathering all project info
- Project kick-off

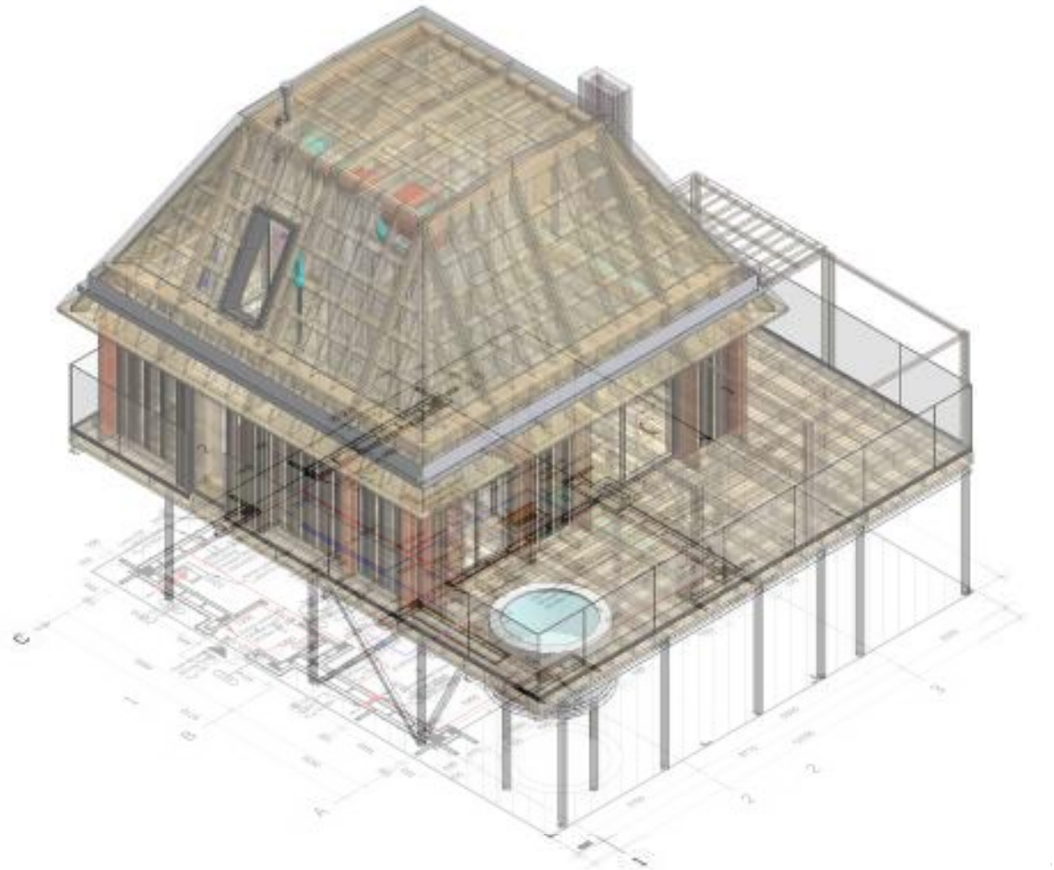
STAGE 2. CONCEPT DESIGN. (LOD 200)



Main deliverables.

- Analysis of Project Brief & Project Program
- Pre-concept design
- Site analysis & research. Working with CRD
- Hand-made first sketches
- Massing 3D models
- Visualizations & renderings
- Client review & feedback
- BIM 3D model LOD 200 (schematic design)
- Architectural design
- Structural design
- MEP design
- Specifications & cost calculations
- Feasibility studies & unit economics
- MMC & DfMA applications (optional)

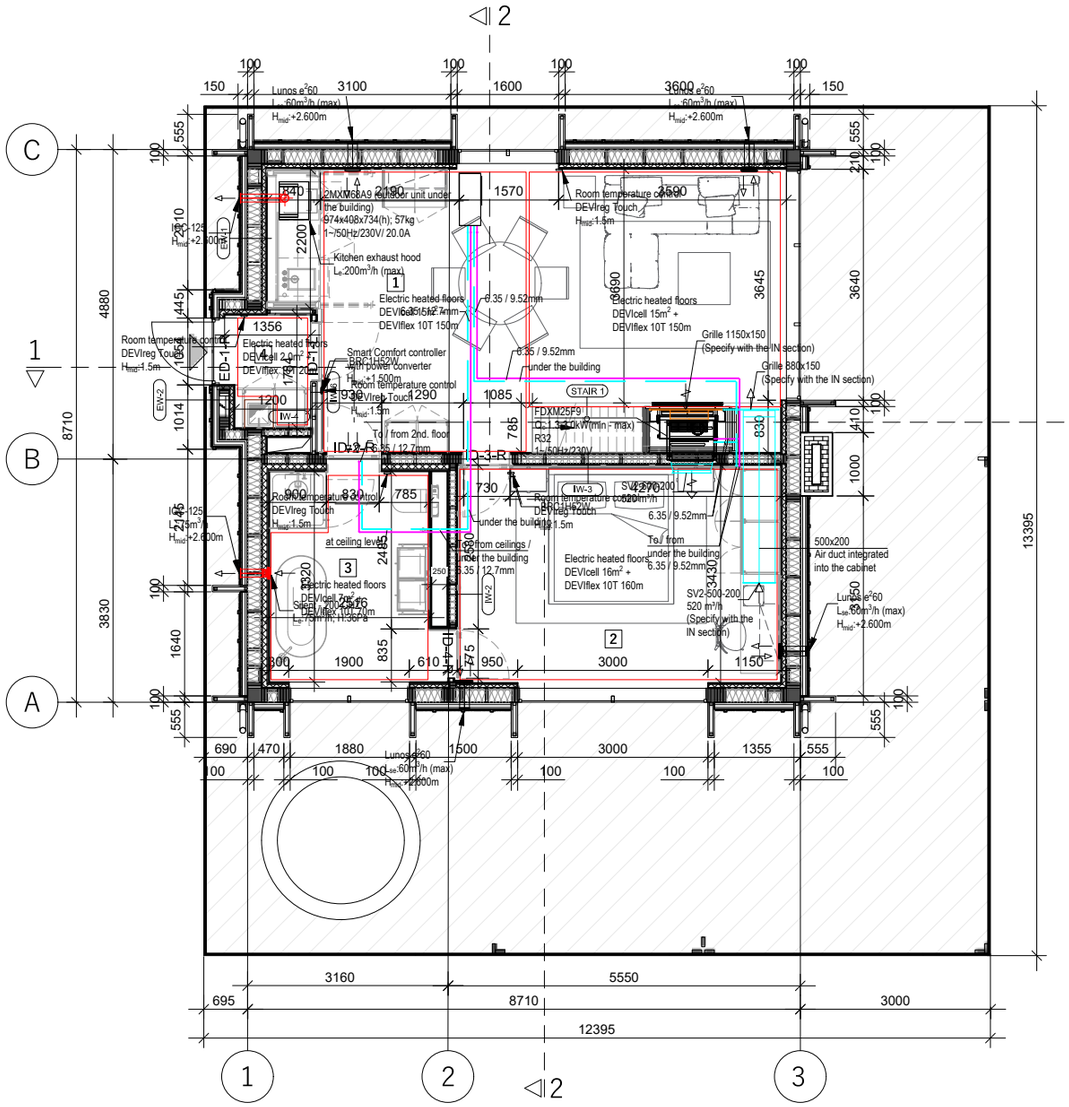
STAGE 3. SPATIAL COORDINATION. (LOD 300)



Main deliverables.

- BIM 3D model LOD 300 (spatial coordination)
- Architectural design
- Structural design
- MEP design
- Specifications & cost calculations
- Feasibility studies & unit economics
- Client feedback
- Sub-contractors search & management
- Obtaining building permit (optional)
- Search & sign off prefab/modular manufacturer

STAGE 4. TECHNICAL DESIGN. (LOD 400)



Main deliverables.

- BIM 3D model LOD 400 (technical design)
- Architectural design
- Structural design
- MEP design
- Specifications & cost calculations
- Feasibility studies & unit economics
- Client feedback
- Sub-contractors search & management
- Production drawings
- Preparation for manufacturing & construction



Main deliverables.

- Sign a contract with off-site manufacturer / traditional contractor
- Off-site manufacturing & production / on-site construction
- Technical tests
- Quality control
- Preparation of modules / kit of parts for on-site transportation (optional)

STAGE 6. HANDOVER



Main deliverables.

- Construction contract handed over
- Building hand over in line with Plan of Use strategy
- Undertake review of Project Performance
- Undertake seasonal Commissioning
- Rectify defects
- Complete initial Aftercare tasks including light touch Post Occupancy Evaluation
- Comply with Planning Conditions as required

STAGE 7. USE



Main deliverables.

- Implement Facilities Management and Asset Management
- Undertake Post Occupancy Evaluation of building performance in use
- Undertake review of Project Performance
- Verify Project Outcomes including Sustainability Outcomes
- Comply with Planning Conditions as required

4. Process maps

RIBA stages

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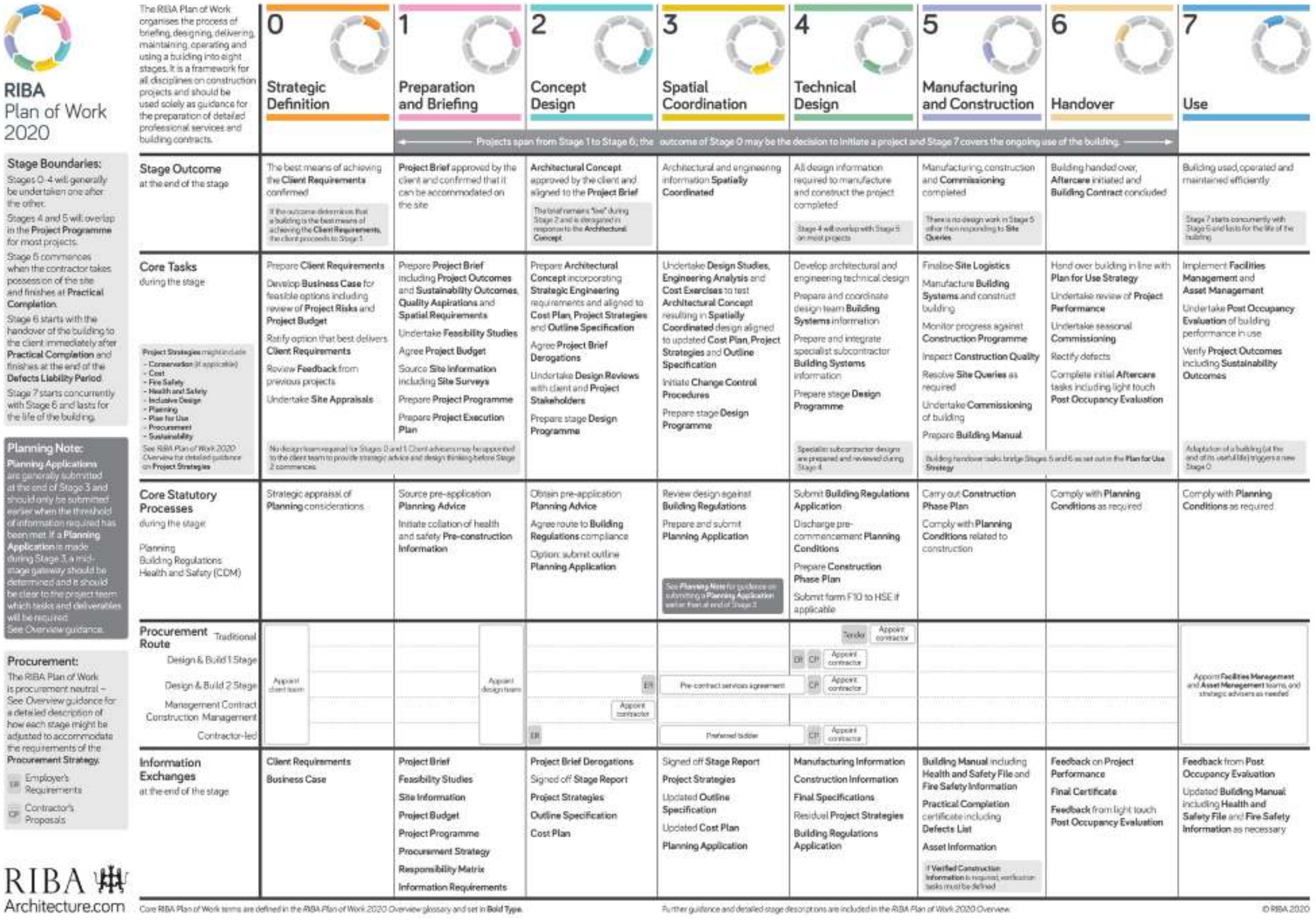
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3. Stage 2. Concept Design
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(Image: RIBA, 2020)

RIBA Plan of Work Template 2020. UK Project Development Road Map

MMC PROJECT ROADMAP BASED ON RIBA* PLAN OF WORK (Link)

Level of Detail (LOD) explanation 1
Level of Detail (LOD) explanation 2

MMC Plan of Work 2025	Stages	0 Strategic Definition	1 Preparation and Briefing	2 LOD 200 Concept Design	3 LOD 300 Spatial Coordination	4 LOD 400 Technical Design (Production Drawings)	5 LOD 500 Manufacturing & Construction	6 Handover	7 Use
			Projects span from Stage 1 to Stage 6; the outcome of Stage 0 may be the decision to initiate a project and Stage 7 covers the ongoing use of the building.						
Stage Outcome at the end of the stage		**Client Requirements** & general vision of the project from the Client are discussed, analyzed and written down by the involved project parties If the outcome determines that a building is the best means of achieving the **Client Requirements**, the Client proceeds to Stage 1	**Project Brief** approved by the client and confirmed that it can be accommodated on the site **Project Framework** (project schedule, responsibility matrix, etc) is formed & prepared	**Architectural Concept** approved by the client and aligned to the **Project Brief** The brief remains "live" during Stage 2 and is derogated in response to the **Architectural Concept**	Architectural and engineering information **Spatially Coordinated**	All design information required to manufacture & construct the project is completed Stage 4 will overlap with Stage 5 on most projects	Manufacturing, Construction & **Commissioning** is completed There is no design work in Stage 5 other then responding to **Site Queries**	Building handed over, **Aftercare initiated & Building Contract** are concluded	Building used, operated and maintained efficiently Stage 7 starts concurrently with Stage 6 and lasts for the life of the building
Core Tasks during the stage		Prepare Client Requirements Develop **Business Case** for feasible options including review of **Project Risks** and **Project Budget** Ratify option that best delivers **Client Requirements** Review **Feedback** from previous projects Undertake **Site Appraisals** Sign a **Contract** with Client No design team required for Stage 0 & Stage 1. Client advisers may be appointed to the client team to provide strategic advice and design thinking before Stage 2 commences.	Prepare **Project Brief** including **Project Outcomes** and **Sustainability Outcomes**, **Quality Aspirations** and **Spatial Requirements** Undertake **Feasibility Studies** Agree **Project Budget** Source **Site Information** including **Site Surveys** Prepare **Project Program** Prepare **Project Execution Plan** Prepare **Project Schedule** & **Scope of Work** Prepare **Deliverables to the Client** Prepare **Project Responsibility Matrix** Prepare **Project Roles Table** Prepare **Contractual Tree Diagram** Prepare **Project Folders Structure** Prepare preliminary **List of Quotes** for required sub-contractors	Prepare **Architectural Concept** incorporating **Strategic Engineering** requirements and aligned to **Cost Plan**, **Project Strategies** and **Outline Specification** Agree **Project Brief Derogations** Undertake **Design Reviews** with client and **Project Stakeholders** Prepare stage **Design Programme**	Undertake **Design Studies**, **Engineering Analysis** and **Cost Exercises** to test **Architectural Concept** resulting in **Spatially Coordinated** design aligned to updated **Cost Plan**, **Project Strategies** and **Outline Specification** Initiate **Change Control Procedures** Prepare stage **Design Programme**	Develop architectural & engineering technical design. Prepare & coordinate design team **Building Systems** information. Prepare & integrate specialist subcontractor **Building Systems** information. Prepare Stage **Design program** Specialist subcontractor designs are prepared and reviewed during Stage 4.	Finalise **Site Logistics** Manufacture **Building Systems** and construct building Monitor progress against **Construction Program** Inspect **Construction Quality** Resolve **Site Queries** as required Undertake **Commissioning** of building Prepare **Building Manual** Building handover tasks bridge Stage 5 & 6 as set-	Hand over building in line with **Plan of Use Strategy** Undertake review of **Project Performance** Undertake seasonal **Commissioning** Rectify Defects Complete initial Aftercare including light touch **Post Occupancy Evaluation** out in the **Plan for Use Strategy**	Implement **Facilities Management** and **Asset Management** Undertake **Post Occupancy Evaluation** of building performance in use Verify **Project Outcomes** including **Sustainability Outcomes** Adaptation of a building (at the end of its useful life) triggers a new Stage 0
Core Deliverables at the end of the stage		1. **Client Requirements** Document 2. **Project Risks** Assessment Document 3. **Feasibility Studies** Analysis Document 3. **Project Budget** Document 4. Project Responsibility Matrix (Draft) 5. Previous Projects Analysis & **Feedback** Document 6. **Project Business Case** Document which includes points 1 - 5 of the above 7. Undertake **Site Appraisals** Document 8. **Project Schedule** & **Scope of Work** (draft, optional) 9. Signed **Contract** with the Client	1. **Project Brief** & **Project Program** Documents 2. **Feasibility Studies** Document 3. **Project Budget** Document 4. **Site Surveys** (Geological Survey and others) 5. Project Schedule & Scope of Work with planned workload 6. Deliverables to the Client Document 7. Project Responsibility Matrix with required Sub-Contractors 8. Project Roles Table 9. Contractual Tree Diagram 10. Procurement Strategy 11. Information Requirements (LOD, LOI)	1. Analysis & Review of the Project Brief & Project Program 2. Pre-Concept Design Stage 3. Architectural Concept Design Package 4. Strategic Engineering Requirements Document (Structure + MEP + Logistics) 5. Interior Concept Design Package 6. Facade Concept Design Package 7. Structural Concept Design Package 8. MEP Concept Design Package 9. Project Brief Derogation Registration Document 10. Design Reviews Registration Document 11. Stage Design Program Document 12. Signed off Stage Report (what is done vs what was planned in this stage) 13. Cost Plan 14. Outline Specifications 15. Material takeoffs 16. Cost Calculations 17. Sub-Contractors Quotes Document	1. BIM 3D model with detailed 3D building components of Architectural, Interior Design, Structural & MEP parts 2. Coordination & alignment between Architectural, Structural & MEP parts with clash detection 3. 2D floor & roof plans, sections & elevations of the buildings 4. Door, windows & other required components' schedules & specifications 5. Architectural Build-Ups & details 6. Architectural Outline Specifications 7. Structural Timber frame static calculations 8. Structural Build-Ups & details 9. Structural Line and point loads onto foundations 10. Structural timber element layouts 11. Summary of static calculations for the municipality 12. Structural Outline Specifications 13. MEP: HVAC layouts & specifications 14. MEP: Water supply layouts & specifications 15. MEP: Sewage system layouts & specifications 16. Electrical & Low Voltage systems layouts & specifications 17. MEP Outline Specifications	1. BIM 3D model with Production Drawings of 2D & 3D building components of Architectural, Interior Design, Structural & MEP parts 2. Production drawings of Architectural, Structural & MEP parts with clash detection 3. Production Drawings of 2D floor & roof plans, sections & elevations of the buildings 4. Production Drawings of doors, windows & other required components' schedules & specifications 5. Production Drawings of Architectural Build-Ups & details 6. Architectural Outline Specifications 7. Structural Timber frame static calculations 8. Production Drawings of structural Build-Ups & details 9. Structural Line and point loads onto foundations 10. Structural timber element layouts 11. Summary of static calculations for the municipality 12. Structural Outline Specifications 13. MEP: Production Drawings of HVAC layouts & specifications 14. MEP: Production Drawings of water supply layouts & specifications 15. MEP: Production Drawings of sewage system layouts & specifications 16. Production Drawings of electrical & Low Voltage systems layouts & specifications 17. MEP Outline Specifications	1. Off-site manufacturing components are produced and montaged on site 2. On-site components are montaged on site	
Core Statutory Processes during the stage		Needs to be filled in by local authorities & professionals In general, Strategic Appraisal of **Planning considerations** needs to be done	Needs to be filled in by local authorities & professionals In general, Urban and Technical Conditions (UTC) need to be obtained by the Client.* Owner of the land / property applies for this document in the planning office of the local municipality. *: This document specifies the max allowed building area, max number of floors, types of building and all other details prescribed by planning office responsible of the land plot. To get this document, owner of the land / property needs to submit proof of ownership and land registry map of the land / property with application fee	Needs to be filled in by local authorities & professionals Concept Design Documentation package needs to be approved by the office of the main city architect	Needs to be filled in by local authorities & professionals Review design against **Building Regulations** Prepare & Submit **Planning Application**	Needs to be filled in by local authorities & professionals Submit **Building Regulations Application** Discharge pre-commencement **Planning Conditions** Prepare **Construction Phase Plan** Submit form F10 to HSE if applicable	Carry out **Construction Phase Plan** Comply with **Planning Conditions** related to construction	Comply with **Planning Conditions** as required	Comply with **Planning Conditions** as required
Procurement Route	Traditional Design & Build 1 Stage Design & Build 2 Stage Management Contract Construction Management Contractor-led	Appoint Client Team	Appoint Design Team	ER Appoint Contractor ER	ER Pre-Contract Services Agreement Preferred Bidder	Tender Appoint Contractor ER CP Appoint Contractor CP Appoint Contractor CP Appoint Contractor			Appoint **Facilities Management** and **Asset Management** teams, and strategic advisers as needed
Information Exchanges at the end of the stage		1. **Client Requirements** Document 2. **Project Business Case** Document 3. Signed **Contract** with the Client	1. Project Brief & Project Program Documents 2. Project Budget Document 3. Site Surveys (Geological Survey and others) 4. Feasibility Studies Document 5. Project Responsibility Matrix with required Sub-Contractors 6. Project Schedule & Scope of Work 7. Procurement Strategy 8. Information Requirements (LOD, LOI) 9. Deliverables to the Client Document 10. Project Roles Table 11. Contractual Tree Diagram	1. Architectural Concept Design Package 2. Strategic Engineering Requirements Document (Structure + MEP + Logistics) 3. Project Brief Derogation Registration Document 4. Design Reviews Registration Document 5. Stage Design Program Document 6. Signed off Stage Report (what is done vs what was planned in this stage) 7. Cost Plan 8. Outline Specification	1. Signed off Stage Report (what is done vs what was planned in this stage) 2. Updated Cost Plan 3. Updated Outline Specification 4. Completed Design Documentation from points 1 - 17 of **Core Deliverables** section	1. **Manufacturing Information** 2. **Construction Information** 3. **Final Specifications** 4. Residual **Project Strategies** 5. **Building Regulations Application** 6. Completed Design Documentation from points 1 - 17 of **Core Deliverables** section	1. **Building Manual** including **Health and Safety File** and **Fire Safety Information** 2. **Practical Completion** Certificate including **Defects List** 3. **Asset Information** If **Verified Construction Information** is required, verification tasks must be defined	1. Feedback on **Project Performance** 2. Final Certificate 3. Feedback from light touch **Post Occupancy Evaluation**	1. Feedback from **Post Occupancy Evaluation** 2. Updated Building Manual including **Health and Safety File** and **Fire Safety Information** as necessary
Design Documentation Package submitted at the end of the stage		Project Business Case Document as a basis for further project development acompinied by the Contract with the Client	Urban and Technical Conditions Document suitable for starting Concept Design stage for the architects Project Framework including points 1 - 11 from **Information Exchanges** section	Concept Design Documentation package suitable for approval of the project by Chief Architect of the Municipality / Area	Completed Technical Detailed Design Documentation package developed by licensed architects & enginners' offices and includes all required parts of technical project documentation	For MMC projects, Technical Design stage should include production shop drawings for / from a certain MMC manufacturer	Site Queries reports and construction progress reports are submitted at the end of the stage		

ER **Employer's Requirements.**
A description of the **Client Requirements** with the specific purpose of providing the basis for tender of a **Building Contract**.

CP **Contractor's Proposals.**

*: RIBA: Royal Institute of British Architects

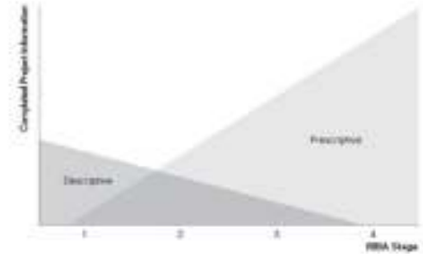
MMC Plan of Work Template 2025.

Project development road map

for MMC & DfMA projects based on RIBA stages

(Images: Ivan Moiseenko, 2025)

##	Parameter	Data		Description
1	**Level of Information (LOI) in RIBA**	Understanding BIM LOD, Levels, and LOI: Navigating the Depths of Building Information Modeling - Leading BIM Service Provider (advenser.com)		
2	**LOD & LOI meanings**	Digital Plan of Work | NBS (thenbs.com)		
		Specification development and digital plans of work | NBS (thenbs.com)	Both LOD & LOI are now regula (LOIN), but RIBA still uses them	ılated and described by BS EN ISO 19650 and named as "Level of Information Need" ɐm as a tandem of two terms
	LOD (Level of Detail):	Graphical Information https://www.thenbs.com/knowledge/level-of-detail-lod-and-digital-plans-of-work	ISO 19650 is an up to date inter	ɛrnational standard for BIM documentation and information management processes
	LOI (Level of Information):	Non-Graphical Information https://www.thenbs.com/knowledge/specification-development-and-digital-plans-of-work		
	Four basic types of LOI: **(based on RIBA)**	**1. Outline**	The client brief and high-level d	l design ideas
		2. Descriptive Information (Описательная информация)	Requirements of the building, sy specification, such as the acous	systems and products can be specified in performance terms in a Descriptive* ustic, thermal or structural requirements.
		3. Prescriptive Information (Предписывающая информация)	The specification details further component products. In prescri product information like range r to allow for asset information to	ɐr into more Prescriptive clauses, selecting the standards, grades and materials of ɔriptive specification or through contractor selection, the specification also needs to include ɐ names, reference product codes and key properties selected from manufacturer choices to develop and for future replacement and repair.
		4. Record	For certain assets, Record spec to verify the specification and ho	ecifications and associated information will be required to record what has been built, how how to maintain the asset.
3	**NBS CHORUS** **Construction Specification Platform**	Specification Software | NBS | NBS (thenbs.com)	I sent a request for DEMO on 2	29.08.2024 & Australia)
4	**LOI (Level of Information) Types & Numeration**	**2. Outline** Information to accompany the Concept Design	This level of information is a sim An outline specification may inc stages, for example to capture ɛ	ɜimple description of types & concepts, summarizing design intent in general terms. ɲclude incomplete descriptions of products and systems to be detailed in later project ɐ client preferences or references.
		3. Descriptive Information (Описательная информация) Information typically required as part of design development	Specification that describes the In descriptive specification, the s including fire, thermal, acoustics standard, e.g., CWCT. This allows for specialist subcor completion if the specified perfc planning) are met.	ɲe overall performance of the deliverable. ɐ specifier can record design intent and be clear about performance requirements, ɨics, structural or durability criteria. References may be made to a particular design ɔntractors to be given design responsibility for taking the detailed design through to ɾrformance requirements (and other criteria such as visual requirements agreed at
		4. Prescriptive Information (Design) (Предписывающая информация) Information required to complete Technical Design	This specification information pr (from the client brief and previo and completion requirements sl to be increased cost associated Some items may still require co the standards specified, or throu	provides a detailed, prescriptive solution to meet the desired overall performance criteria ious specifications) by including product selections and reference to standards. Execution should be included to ensure required verification and testing takes place. There is likely ɐd with greater testing, but increased risk associated with fewer testing requirements. ɔompletion by e.g., a contractor; for example, the selection of supplier products that meet ɾough a process for submittals and approvals, but the technical design is complete.
		5. Prescriptive Information (Completion) (Предписывающая информация) Remaining information completed for manufacturing and construction	This level of information require example, final product choices ɐ Proposals" in earlier specificatic This differes from LOI 4 in that ɐ specification by the contractor ɐ	ires that all final decisions, including contractor selections, are made and captured; for s and detailed manufacturer / supplier data. This includes submittal responses to "Submit ɨtions. ɨt all outstanding decisions within the system or product will be completed in the ɔ an manufacturer, whereas at the previous level some detailed decisions remain.
		6. Record A Record of the final constructed built asset handover to FM / Owners	This level is an as-built record o information such as product refe This will include any verification systems, e.g., through test resu This information would typically lifecycle to aid with maintenanc	ɾ of the actual systems and products installed in the built asset, and all relevant asset eferences, variations, and commissioning reports. ɔn information to demonstrate that original requirements have been met by the final ɜults as requested in previous specifications. ɭly be transferred to asset databases, used during the operational stage of a buildings' ɲce, product replacement, and disassembly.
5	**Uniclass System** Classification tables and codes. UniClass is a free of charge service, and all the codes & materials are available for free To find Uniclass Code **Abbreviatures of the assets in Uniclass (can be used in our system)**	Uniclass | NBS (thenbs.com) https://www.thenbs.com/our-tools/uniclass/getting-started-with-uniclass Uniclass, delivered by NBS (thenbs.com) Uniclass, delivered by NBS (thenbs.com)	Nordic Homes needs the syster (we can take RIBA classificatior Where to get the full British Clas Do we have similar classificatio **We need to use exact the san materials in the future.**	ɐm of codes & classifications to mark the LOI content on to save time) lassification System with all the codes and their translation? ion in Latvia and/or internal Nordic Homes coding system? **ame UK classification to not spend time on renaming and to be able to use UK**

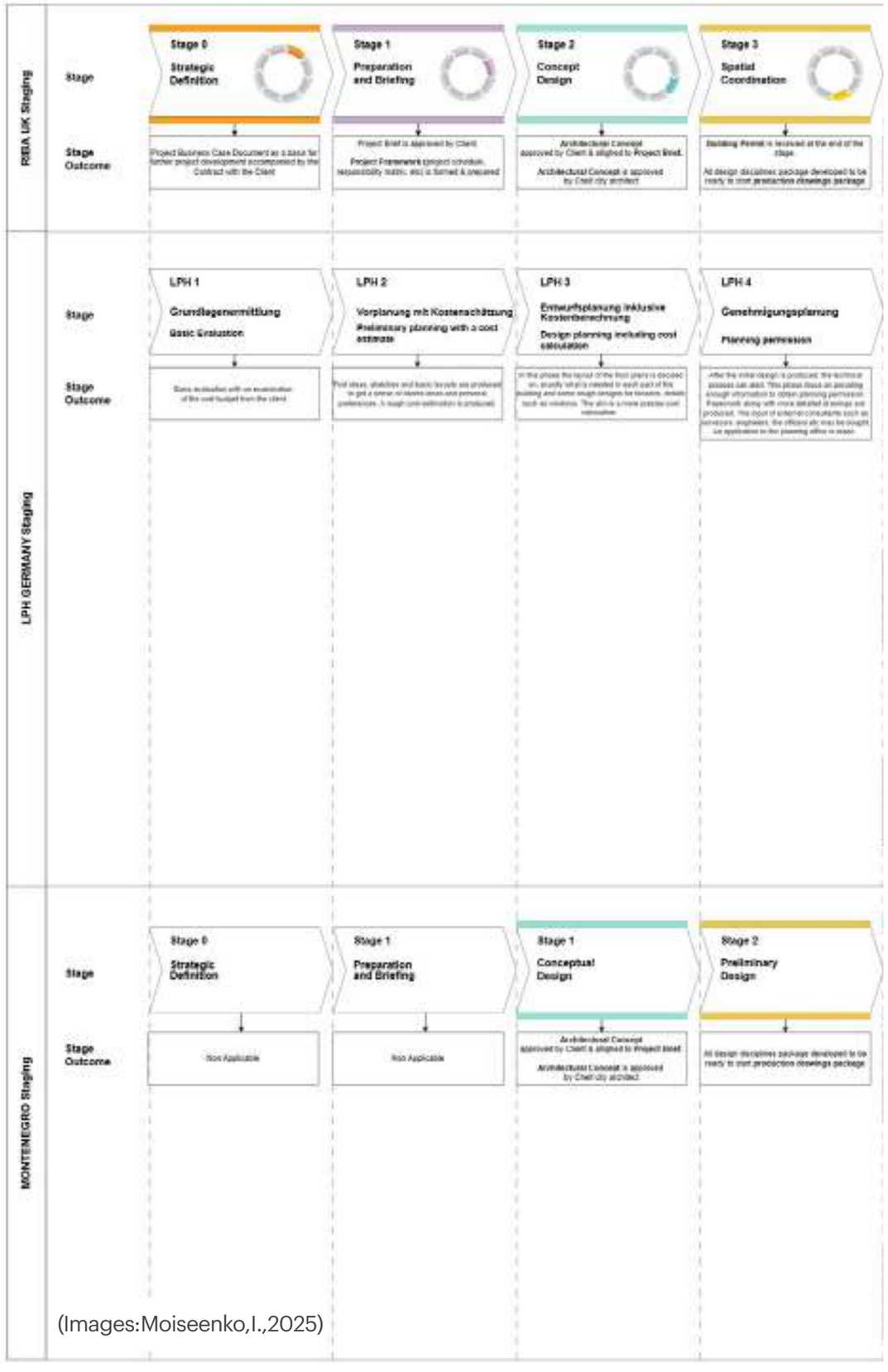




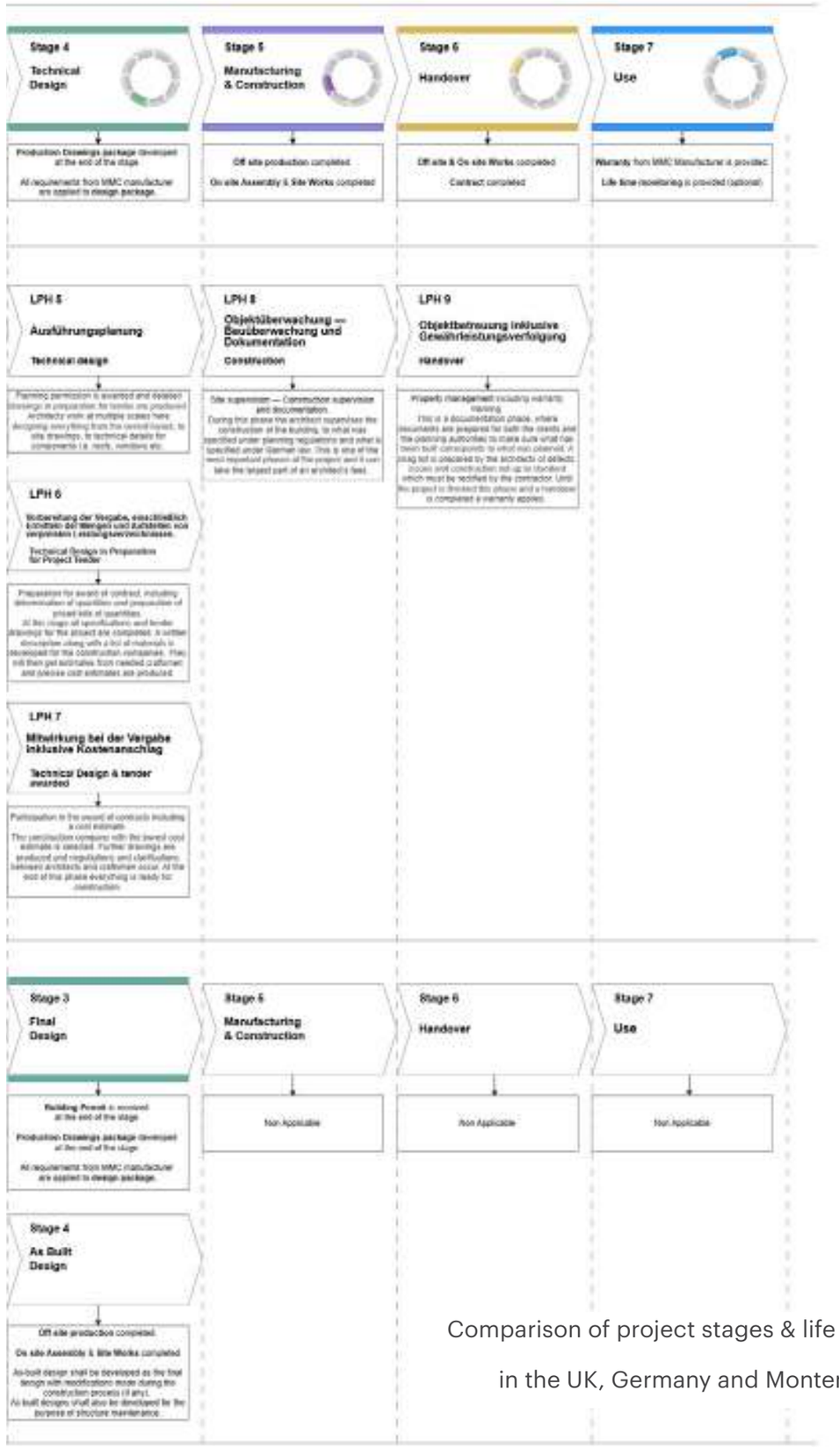


(Images: Moiseenko, I., 2024)

RIBA Plan of Work Template 2020. Main terms & conditions.

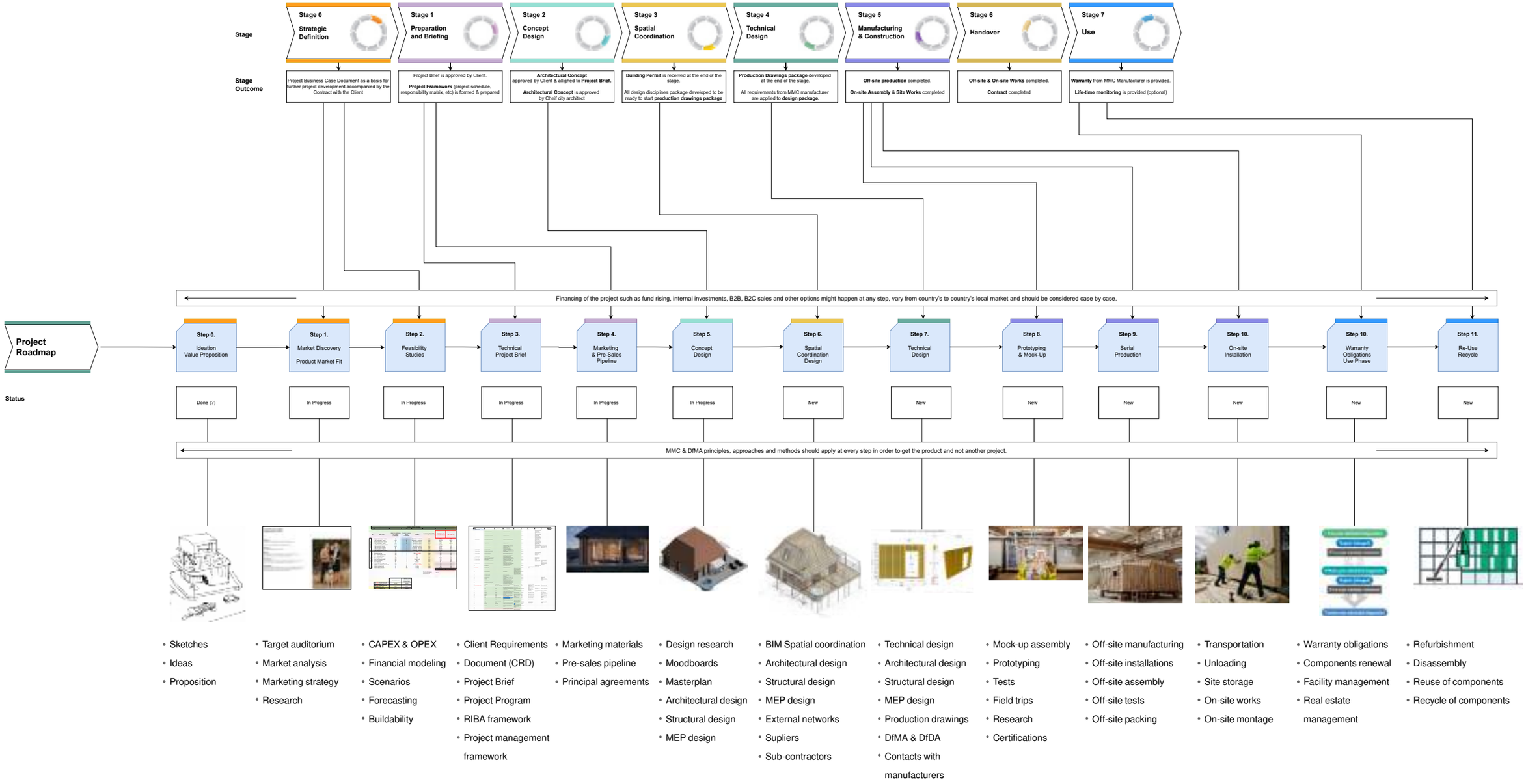


(Images:Moiseenko,I.,2025)



Comparison of project stages & life cycle in the UK, Germany and Montenegro

Iterative step-by-step project realization



(Images: Moiseenko, I., 2025)

MMC project road map with RIBA stages

linked with the main principal steps of the project development & life cycle

Stage 0. Strategic Definition

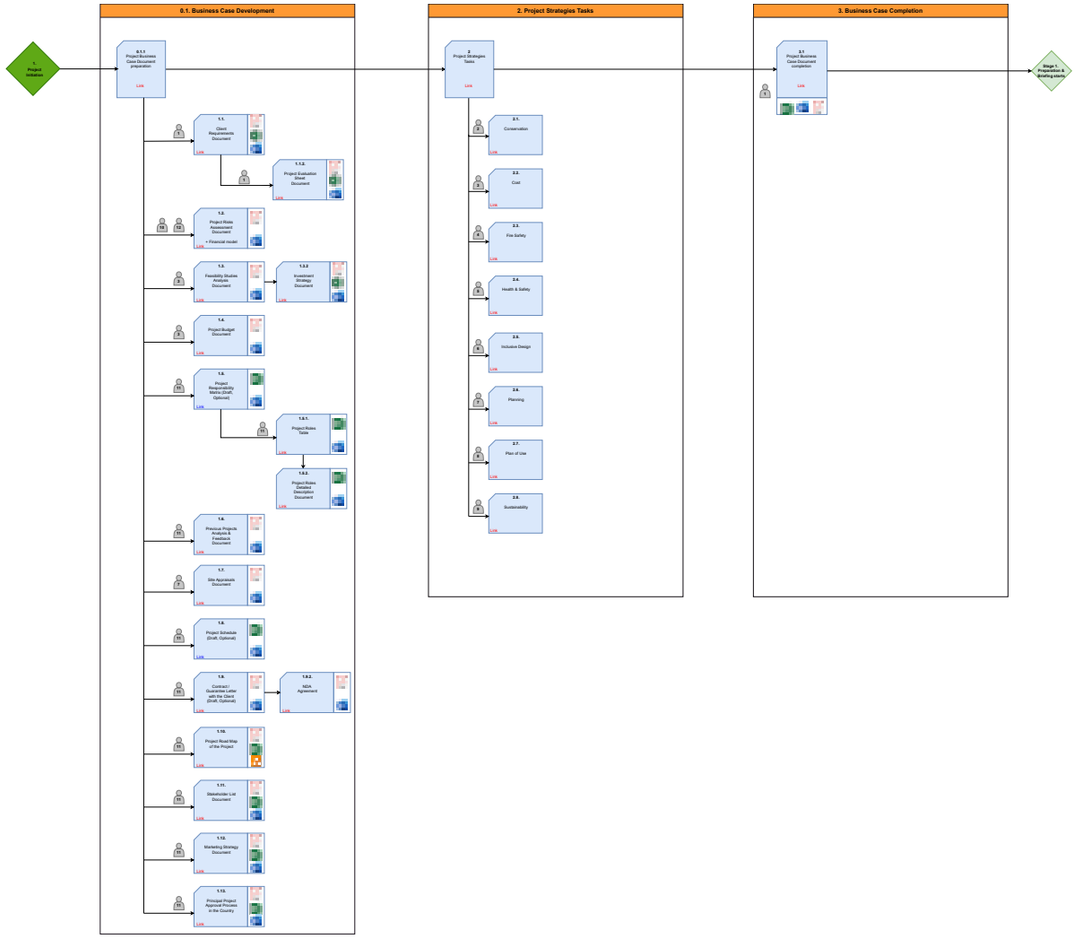
Stage 0, Strategic Definition, is dedicated to definition of the Client Requirements, assessing Project Risks, completion of Feasibility Studies Analysis, preparation of Project Budget together with the analysis of previous projects and getting SIte Appraisals.

The next several pages represent process step-by-step map of Strategic Definition stage alongside with the main templates of the documents need to be used here, such as:

- Client Requirements Document
- Project Risks Document
- Feasibility Studies Document
- Project Budget Document
- Previous Projects Analysis
- Site Appraisals Document
- Business Case Document as the result of all the above mentioned information parts
- Project (company) organigram & structure

Back to content

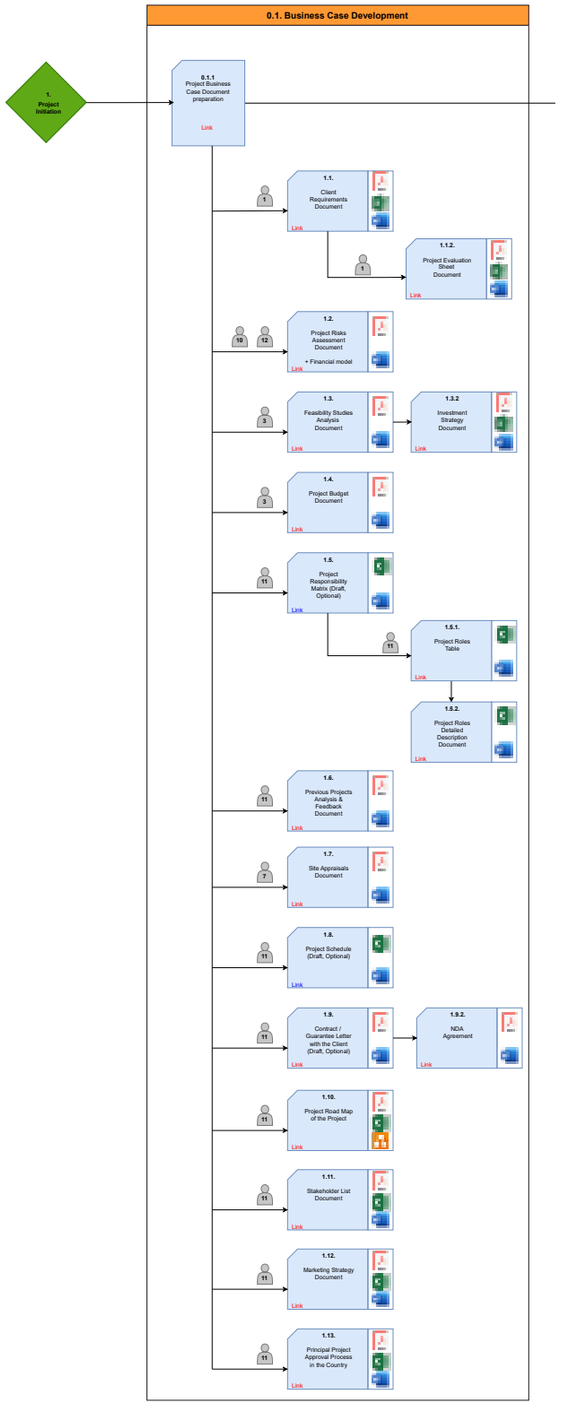
STAGE 0. STRATEGIC DEFINITION.



Stage 0, Strategic Definition step-by-step infographic description.

(Images: Moiseenko, I., 2024)

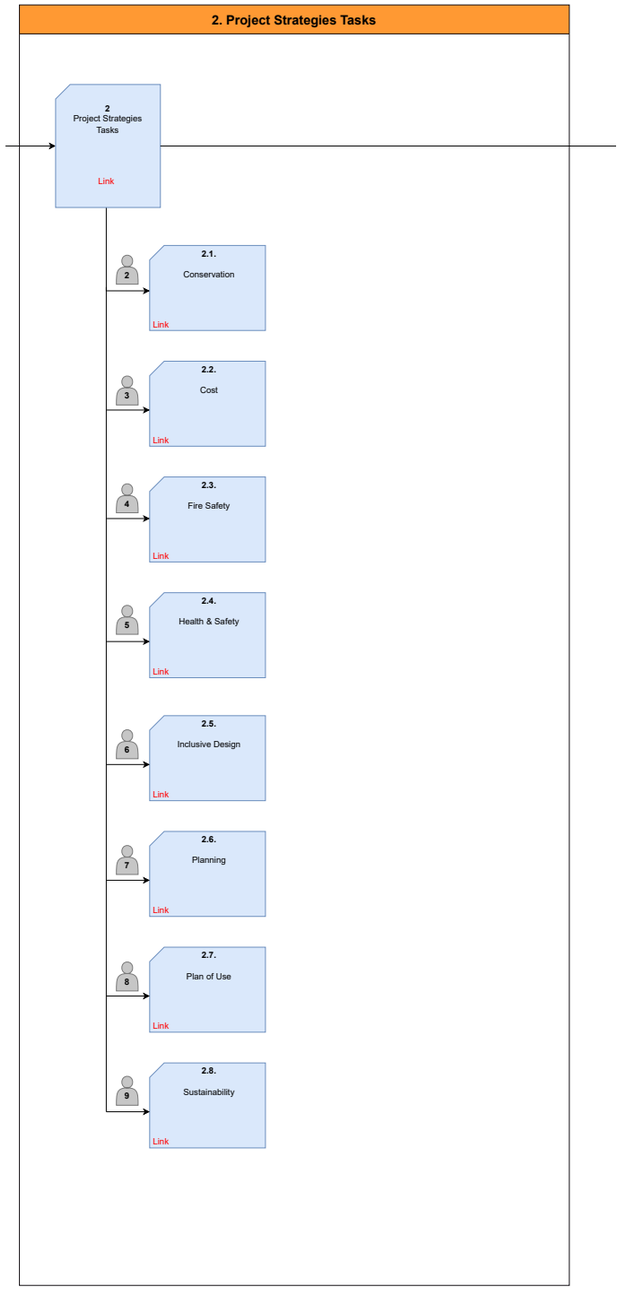
Stage 0, Strategic Definition step-by-step text description.



(Images: Moiseenko, I., 2024)

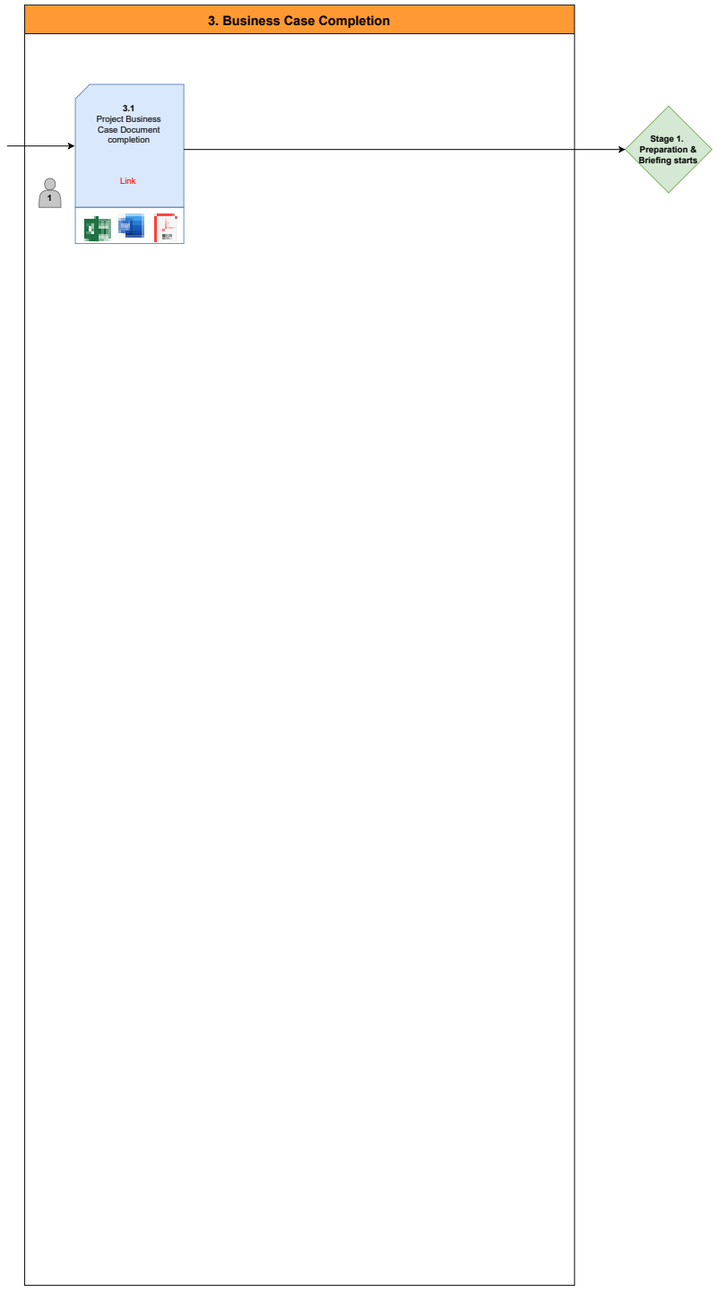
Step 1

Business Case development & preparation



Step 2

Business Case development & completion



Step 3

Business Case completion

(Images: Moiseenko, I., 2024)

MMC Real Estate Project (company).

Organigram and structure.

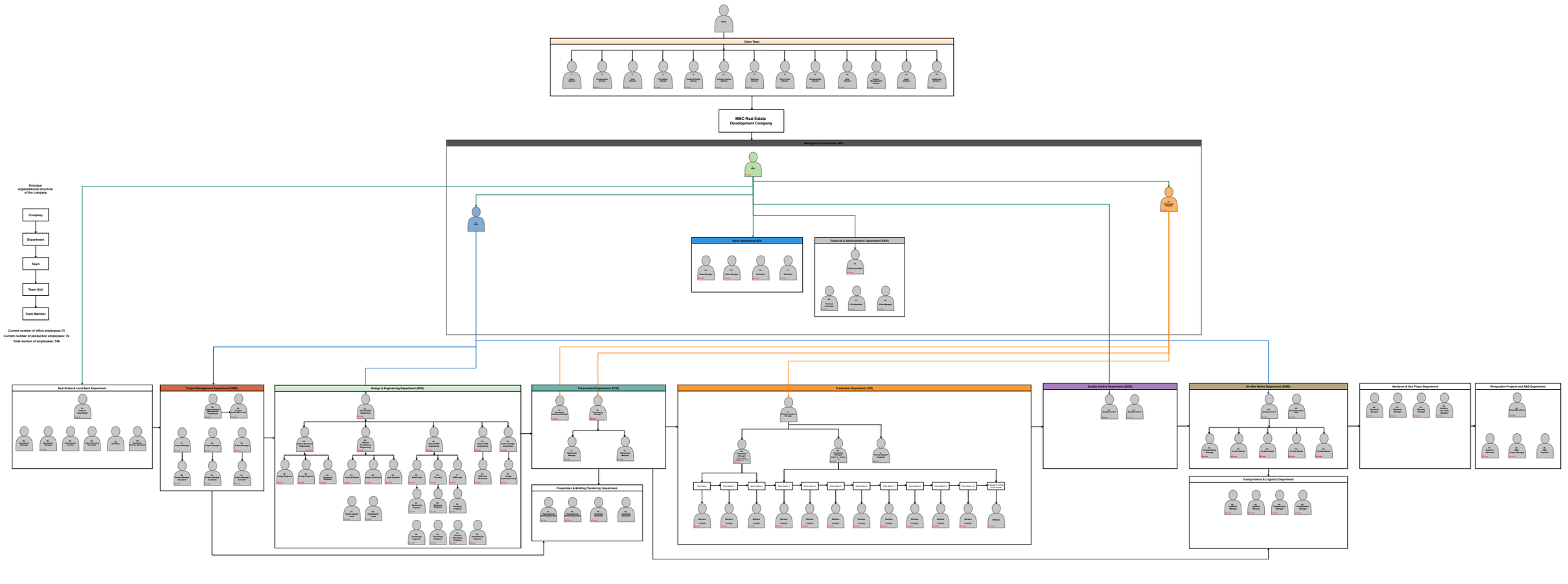
Every project, company and business venture are run by people. People and individuals are the key and, many times, most expensive part of the project. That is why it is very important to understand the team composition starting from stage 0. Such an awareness allows to reach several business goals:

- Create core team in Stage 0 to start the project
- Know in advance which professionals are required in each stage and each step within the stage to provide smooth hiring process
- To oversee the team composition on the strategic level and to manage it in an agile way

(Image: Moiseenko, I., 2025)

##	Departments & Roles	Colleague
I	**Client Team**	
1	Client Adviser	
2	Conservation Adviser	
3	Cost Adviser	
4	Fire Safety Adviser	
5	Health & Safety Adviser	
6	Inclusive Design Adviser	
7	Planning Adviser	
8	Plan of Use Adviser	
9	Sustainability Adviser	
10	Risk Adviser	
11	Project Management Adviser	
12	Legal Adviser	
13	Additional Adviser 1	
II	**Management Department (MD)**	
I	CEO	
II	COO	
III	Production Director	
III	**Sales Department (SD)**	
14	Sales Manager	
15	Sales Manager	
16	Estimator	
17	Estimator	
IV	**Financial & Administrative Department (FAD)**	
18	Chief Accountant	
19	Financial Controller	
20	HR Specialist	
21	Offie Manager	
V	**Real Estate & Land Bank Department**	
22	Head of Real Estate	
23	Real Estate Manager	
24	Real Estate Manager	
25	Municipality Adviser	
26	Urban Planning Specialist	
27	Architect	
28	Feasibility Studies Specialist	
VI	**Project Management Department (PMD)**	
29	Head of Project Management Department	
30	Project Automation Lead	
31	Project Manager	
32	Project Manager	
33	Project Manager	
34	Project Manager Assistant	
35	Project Manager Assistant	
36	Project Manager Assistant	
VII	**Design & Engineering Department (DED)**	
37	Head of DED Department	
38	Head of Structural Engineering	
39	Design Engineer	
40	Design Engineer	
41	Structural Engineer	
42	Head of Architectural Engineering	
43	Junior Architect	
44	Design Technician	
45	Lead Architect	
46	Interior Design Lead	
47	Visualization Lead	
48	Head of MEP Engineering	
49	HVAC Lead	
50	EL Lead	
51	WSS Lead	
52	Mechanical Engineer	
53	Electrical Engineer	
54	Plumbing Engineer	
55	Technology Engineer	
56	Technology Engineer	
57	Thermal Mechanics Engineer	
58	Sustainability Engineer	
59	Head of BIM Engineering	
60	Head of Design Automation	
61	BIM Lead Technician	
62	Design Automation Lead	
VIII	**Procurement Department (PCD)**	
63	Production Assistant Manager	
64	Purchasing Manager	
65	Warehouse Manager	
66	Warehouse Manager	
IX	**Preparation & Briefing (Tendering) Department**	
67	Preparation & Briefing Specialist	
68	Preparation & Briefing Specialist	
69	Tendering Specialist	
70	Tendering Specialist	
X	**Production Department (PD)**	
71	Chief Production Manager	
72	Production Manager Pre-Cutting & Stations 1 - 2	
73	Production Manager Station 3 - Station 10	
74	Factory Support Engineer	
XI	**Quality Control Department (QCD)**	
75	Quality Control	
76	Quality Control	
XII	**On-Site Works Department (OWD)**	
77	Quality Control	
78	Site Supervision Lead	
79	On-Site Works Manager	
XIII	**Handover & Use Phase Department**	
80	Handover Manager	
81	Handover Manager	
82	Warranty Manager	
83	Building Life Cycle Manager	
XIV	**Perspective Projects and R&D Department**	
84	Chief R&D Officer	
85	Senior IT Specialist	
86	R&D Project Manager	
87	R&D Engineer	
	TOTAL	**87**

MMC real estate development company organigram. Table view



Principal
organizational structure
of the company

Company

Department

Team

Team Unit

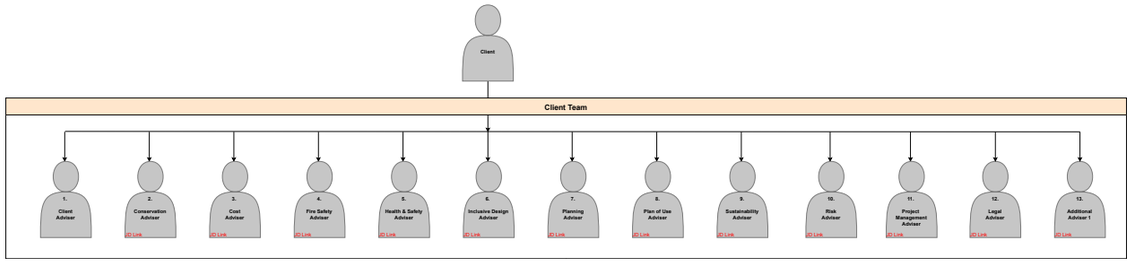
Team Member

Current number of office employees:75
Current number of production employees: 70
Total number of employees: 145

(Image: Moiseenko, I., 2025)

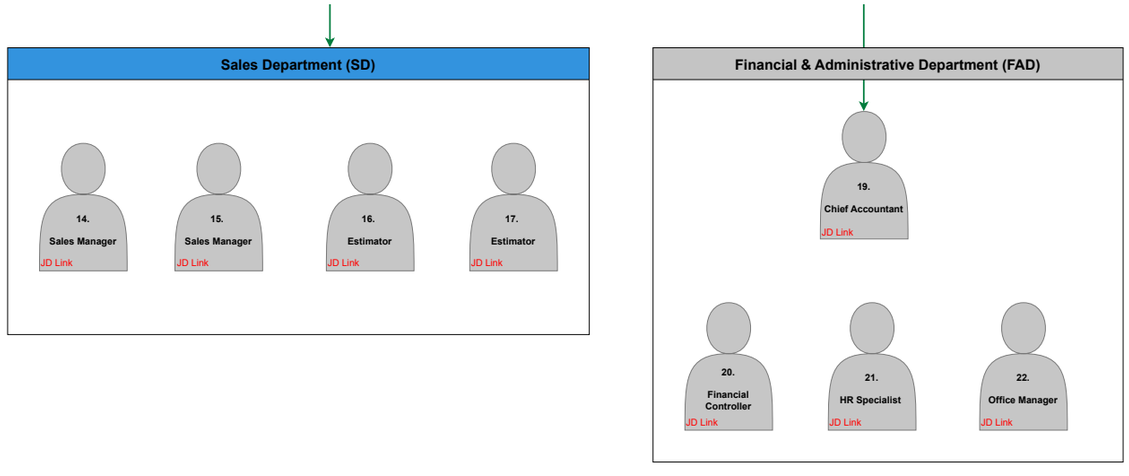
MMC real estate development company organigram.

Overview



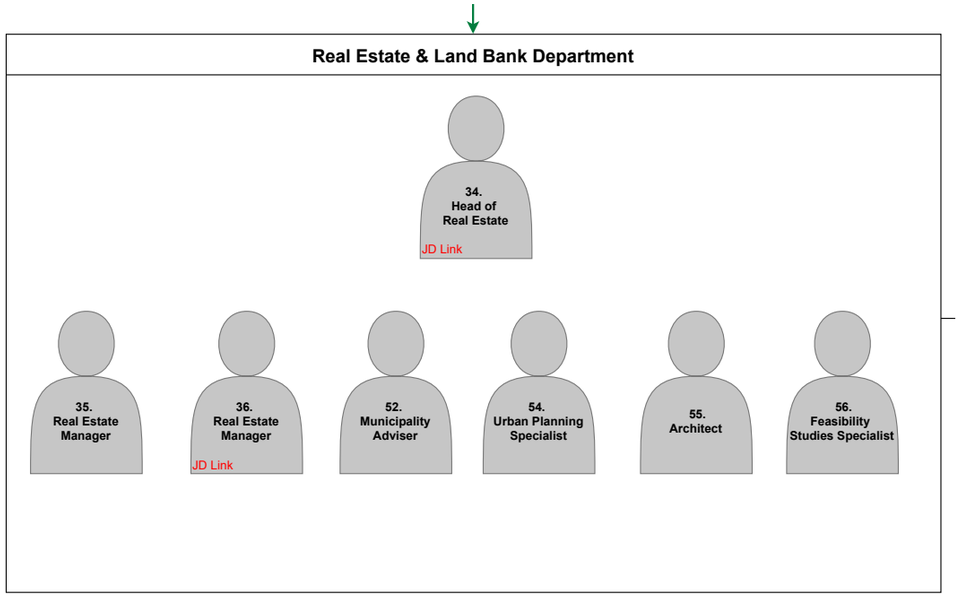
Client team

Top management team

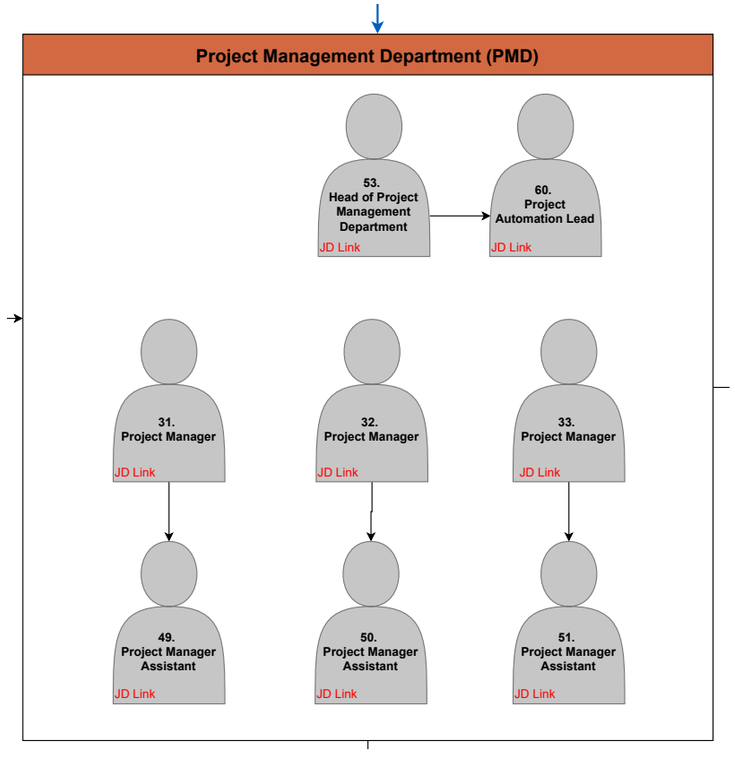


(Images: Moiseenko, I., 2025)

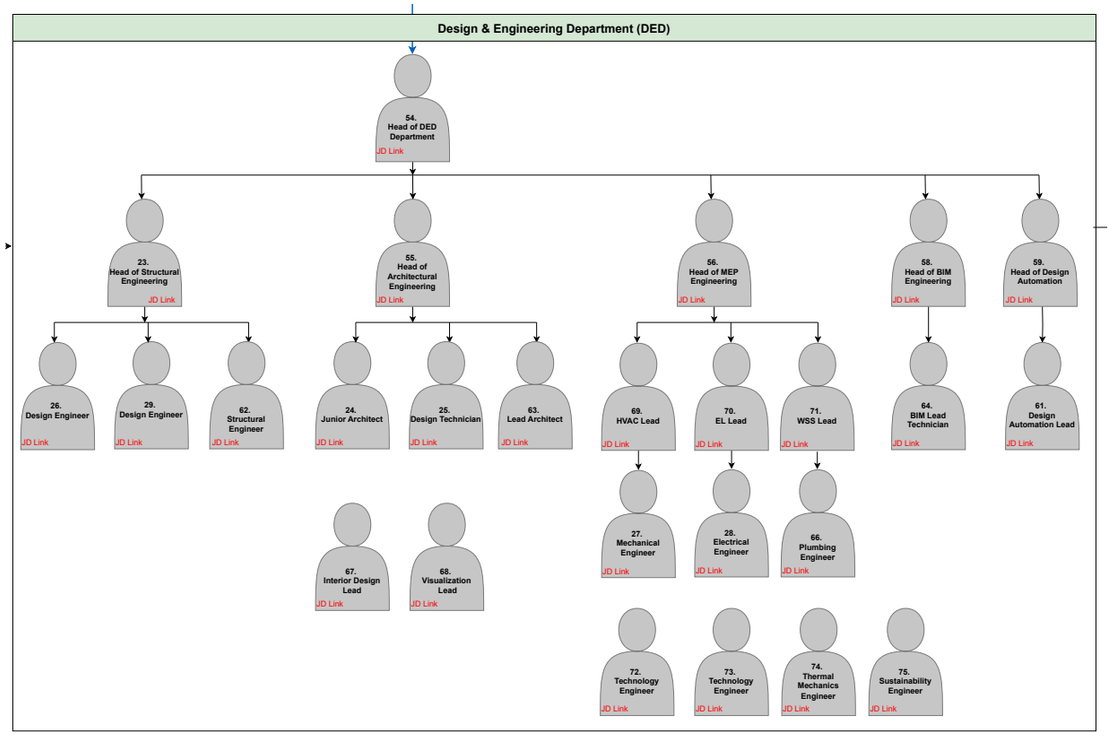
Sales department and financial & administrative department



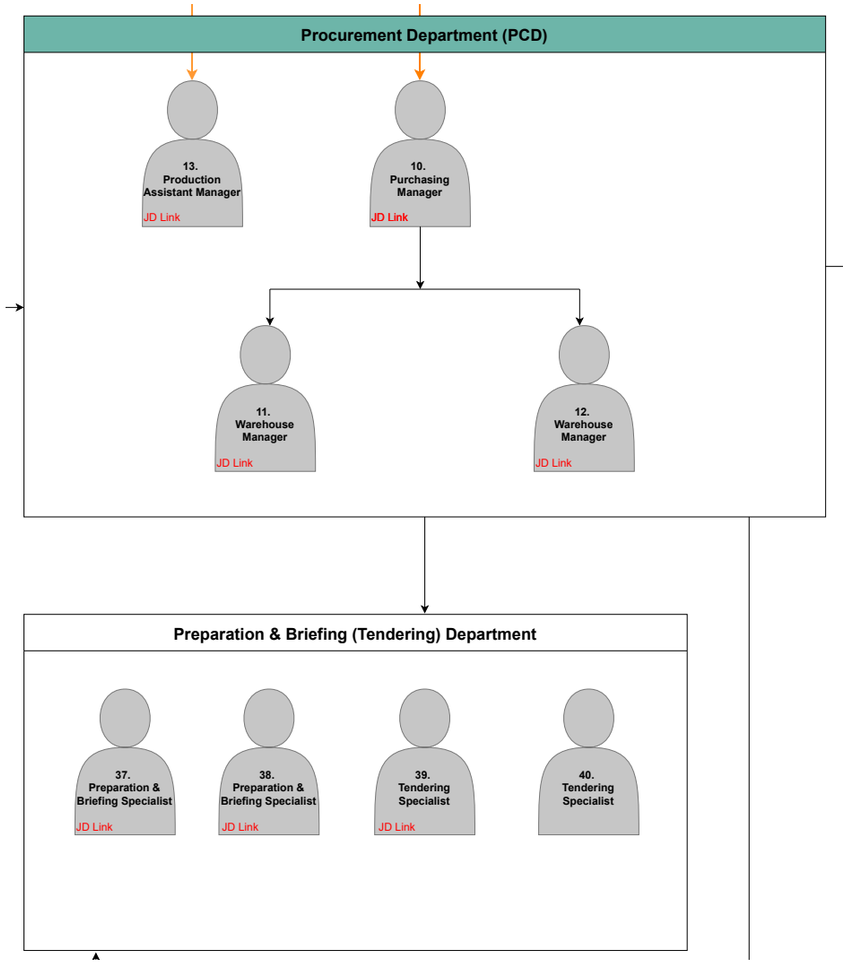
Real estate department



Project management department



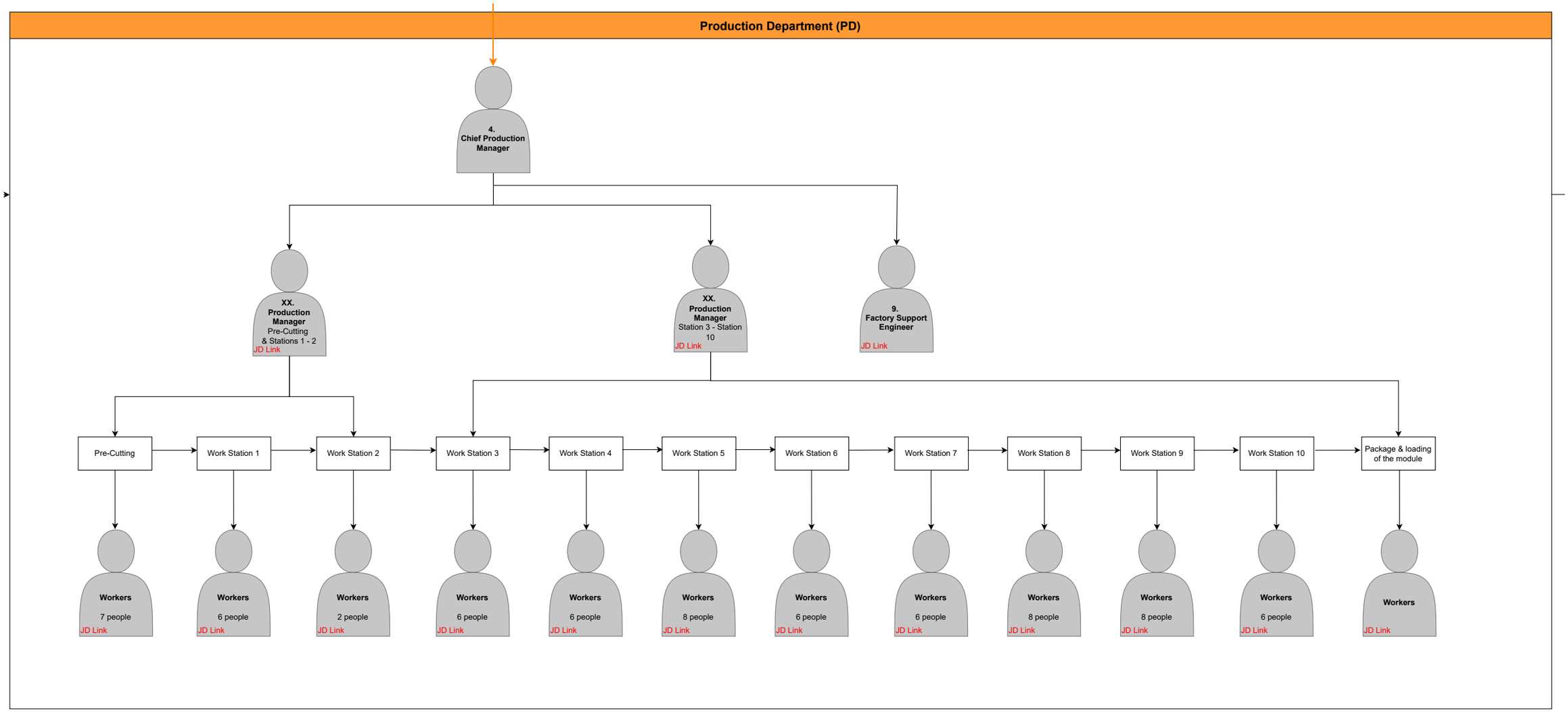
Design & engineering department



Procurement department

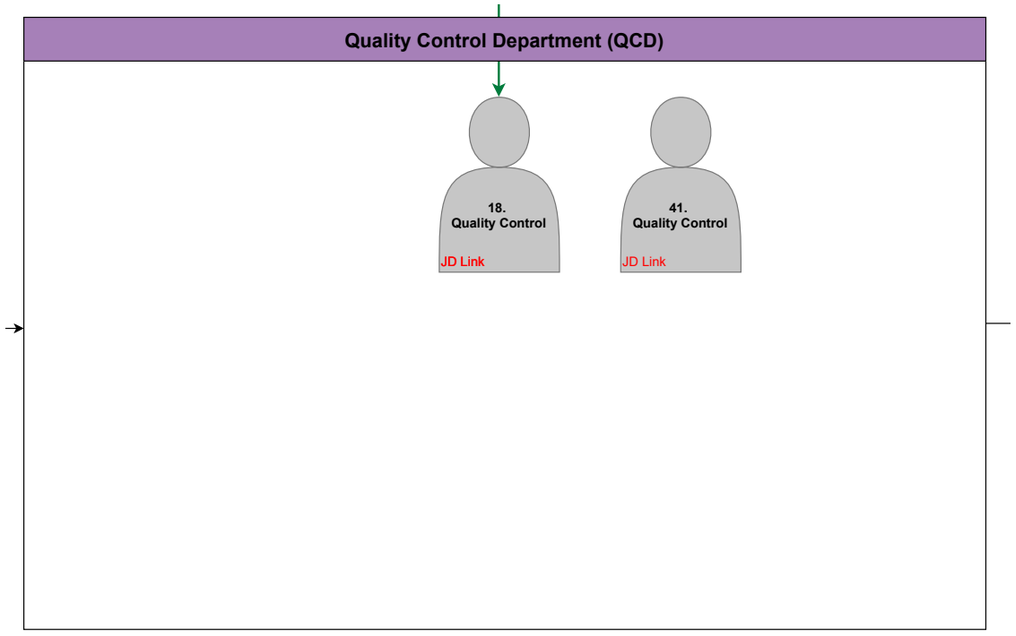
Preparation & briefing department

(Images: Moiseenko, I., 2025)

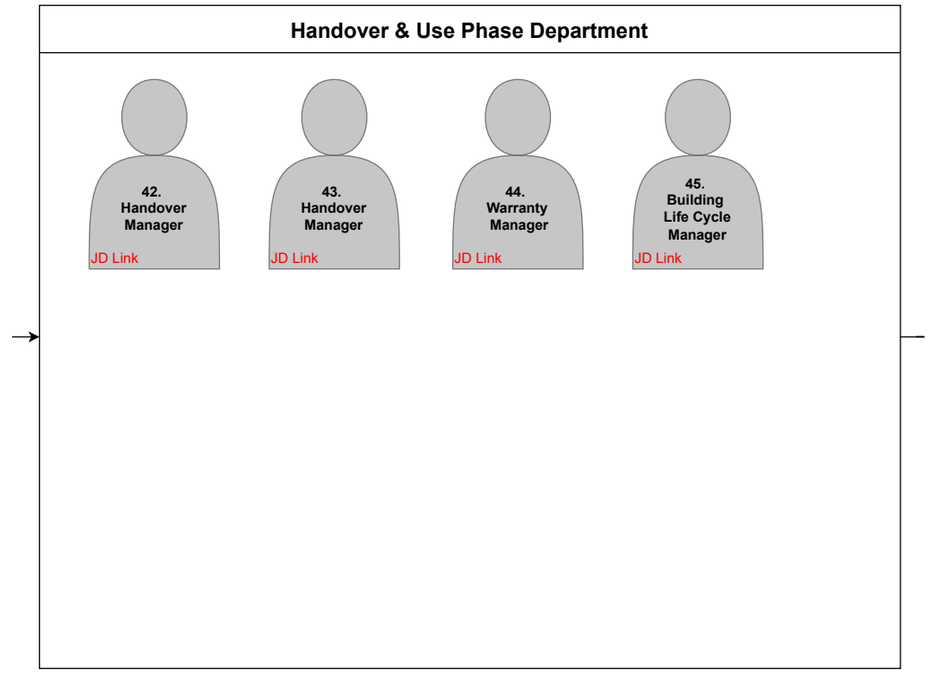


Production department

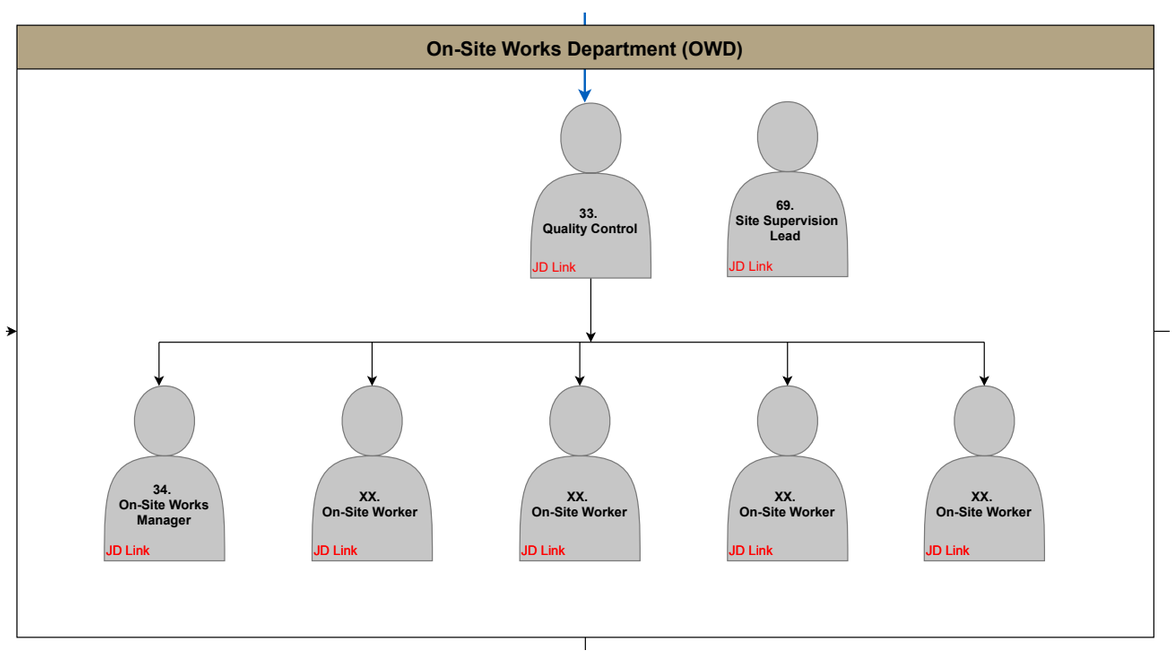
(Images: Moiseenko, I., 2025)



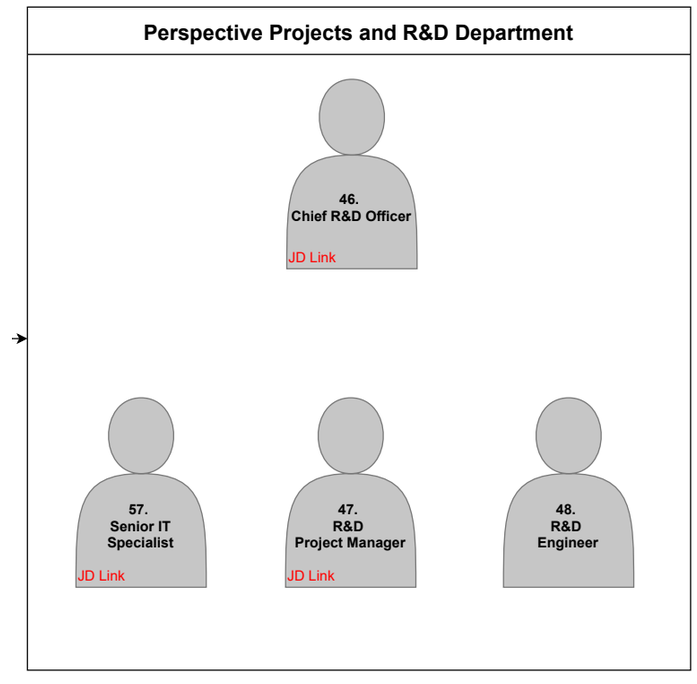
Quality control department



Handover department



On-site works department



Perspective projects department

(Images: Moiseenko, I., 2025)

Stage 1. Preparation & Briefing



Stage 1, Preparation & Briefing, is dedicated to preparation of the project brief & project program, its approval by the client, development of project management tools and allocation of the project team.

The next several pages represent process step-by-step map of Preparation & Briefing stage alongside with the main templates of the documents need to be used here, such as:

- Text step-by-step road map of the stage
- Infographic step-by-step road map of the stage
- Responsibility matrix template
- Project schedule & scope of work template
- Deliverables to the client template
- Project folder structure template
- Minutes of meeting notes template
- Sub-contractors quoting table template
- Logistics feasibility studies exercise
- Contractual tree diagram and other templates

Back to content

Project Initiation, Preparation & Briefing

##	Activity / Process / Task	Go / No Go Choice (Milestone)	Responsibility Matrix: NHE Member / Department responsible to initiate the Process	Responsibility Matrix: NHE Member / Department responsible to complete the Process	Responsibility Matrix: NHE Member / Department responsible to approve & finalize the Process	Templates & Documents: Data / Documents need to be submitted as a result of the Task / Process	Templates & Documents: Presence of Template / Document need to be submitted	Templates & Documents: Who is responsible to prepare the document	Templates & Documents: Who is responsible to fill in the document	Approximate Duration of the Process, Days
Stage 0. Preparation & Briefing										
1	**Project Initiation**									
1.1.	New incoming Design & Engineering project arrives		Kaspars Sendvals Janis Goloveckis							
2	**Project Brief Initial Data Collection**									
2.1.	Collect & register initial input data of the project from the client		Project Manager	Project Manager Design Team	Project Manager	Client Input Data Analyses (project location, type of the building, plot size, room schedule & program, GFA / NFA / LFA and other indicators (see the Template example)	Template_Stage 1_ PMB_Client Input Data_Analysis Benchmarks			
2.2.	Getting Project Brief & Project Program (equal to Technical Request) from the Client		Kaspars Sendvals Janis Goloveckis Project Manager	Project Manager	Project Manager	1. Three main documents should be included in Project Brief & Project Program: Fire Report (Fire Ratings) Sound Report (Acoustic Requirements) Energy Efficiency Report (U Values) 2. List of unclear questions regarding initial Project Brief with Client's answers & explanations				
2.2.1.	Preparation of the Project Brief & Project Program by NHE Team in case of the absence of it on the Client's side (make a template)		Kaspars Sendvals Janis Goloveckis Project Manager	Project Manager	Kaspars Sendvals Janis Goloveckis Project Manager	Project Brief, Project Program (equal to Technical Request)				
2.3.	Organize meetings & workshops with the client to clarify the questions & data required to analyse the workload & capacity for the new project		Project Manager	Project Manager	Project Manager	1. Workshop Registration Data document	Template_Stage 1_ PMB_Workshop Registration Data			
2.4.	Start of the Contract Preparation		Kaspars Sendvals	Legal Team	Kaspars Sendvals					
3	**Initial Permit Documentation Gathering (IPD)**		Project Manager	Project Manager	Project Manager					
3.1.	Property & Legal Documents to the land plot and buildings (structures) located on it									
3.1.1.	Land Plot Purchase / Sale / Lease agreements									
3.1.2.	Governmental Real Estate Statement with the main characteristics and registered rights to the land plot									
3.1.3.	Governmental Real Estate Statement with the main characteristics and registered rights to the buildings / structures located on the land plot (if any)									
3.1.4.	Cadastral plan of the land plot									
3.1.5.	Technical plan of the buildings / structures located on the land plot (if any)									
3.2.	Information from territorial planning documents									
3.2.1.	Masterplan of the land plot (Градостроительный план земельного участка)									
3.2.2.	Land use planning project (Проект планировки территории)									
3.2.3.	Land surveying project (Проект межевания территории)									
3.3.	Administrative documents of authorities, permits and approvals									
3.3.1.	Authority decision on preliminary approval of the location of the building									
3.3.2.	Act of selecting a land plot for construction									
3.3.3.	Permission to deviate from the maximum parameters of permitted construction, reconstruction of capital construction projects									
3.3.4.	Permission to demolish a capital construction project, dismantle utility networks									
3.3.5.	Felling permit / permit for transplanting trees and shrubs									
3.3.6.	Coordination of construction with the relevant authorized executive parties of state and municipal authorities, specialized departments									
3.3.7.	Letters and conclusions of authorized control and supervisory parties (letters on the presence/absence of cultural heritage sites and their protection zones on the construction site, conclusions on the absence of minerals in the subsoil under the site of the upcoming construction, certificates on background concentrations of pollutants in the atmospheric air, climatic characteristics of the area), permits from the relevant operating organizations for construction work in areas where underground communications (cable, gas, water, sewer), overhead power lines and communication lines pass, in the right-of-way of railways.									
3.4.	Technical conditions for connection (technological connection) to utility networks									
3.4.1.	Technical conditions for connection (adjacency) to a road (road network)									
3.4.2.	Technical conditions for connection to utility networks of the relevant type (electricity supply, water supply and sanitation, heat supply, gas supply, etc.)									
3.4.3.	Special technical conditions (if needed)									
3.5.	Materials obtained as a result of the conducted engineering surveys									
3.5.1.	Engineering and geodetic suerveys									
3.5.2.	Engineering and geological surveys									
3.5.3.	Engineering and environmental surveys									
3.5.4.	Engineering and geotechnical surveys									
3.5.5.	Engineering and hydrometeorological surveys									
3.5.6.	Other required surveys									
3.5.7.	Geodetic basis including engineering topographic plan scale 1:500, information and reference plan M 1:500, engineering and topographic material scale 1:200, 3D model of the terrain and underground utility facilities at a scale of 1:500									
3.5.8.	Other documents (e.g., justification of construction document, environmental impact assessment, technical reports, approval of all tge owners of the land plot and real estate located on it, agreement with the owners of adjacent land plots									
4	**Company High-Level Capacity Analysis**									
4.1.	Analysis of the current workload & capacity of the company		Project Manager	Project Manager Design Team	Project Manager	How many team members and Man-Hours (M-H) can be dedicated to the new project and its duration	NHE Project Task Management System			
4.2.	Check Project Task Management System to see the current planned workload & capacity of the team		Project Manager	Project Manager	Project Manager	1. Project Task Management System	NHE Project Task Management System			
4.3.	Calculate planned workload for the new project based on Project Brief Initial Data and analyse the updated total workload & capacity of the team		Project Manager	Project Manager	Project Manager	1. Project Task Management System	NHE Project Task Management System			
4.4.	Analyse whether NHE requires participation of sub-contractors for the new project		Project Manager	Project Manager	Project Manager					
4.5.	Make a decision whether NHE has enough team capacity to complete the project		Project Manager Janis Goloveckis Kaspars Sendvals	Project Manager Janis Goloveckis Kaspars Sendvals	Project Manager Janis Goloveckis Kaspars Sendvals					
4.6.	NHE participates / doesn't participate in the project	Yes / No								
5	**Preparation of Commercial Proposal. Internal Data Collection**					1. Commercial Proposal Template				
5.1.	Kaspars insights, inputs, requests and other info		Project Manager	Project Manager	Project Manager					
5.2.	Janis insights, inputs, requests and other info		Project Manager	Project Manager	Project Manager					
5.3.	Legal analysis of the clients Input Data, Project Brief and project, in general		Project Manager	Legal Team	Project Manager					
5.4.	Architects Team estimated workload in Man Hours		Project Manager	Design Team	Project Manager					
5.5.	Structural Engineers Team estimated workload in Man Hours		Project Manager	Design Team	Project Manager					
5.6.	MEP Engineers Team estimated workload in Man Hours		Project Manager	Design Team	Project Manager					
5.7.	Send the requests to Sub-Contractors (if needed) for their estimated workload in Man Hours & preliminary price of the services		Project Manager	Project Manager	Project Manager					
5.8.	Adjustments of the Project Brief & Project Program based on NHE Team workload inputs & technical feedback		Project Manager	Project Manager	Project Manager					
5.9.	Provide an estimated schedule & timeline of the project based on Project Brief & Project Program (Project Schedule is one of the obligated applications for the Contract)		Project Manager	Project Manager	Project Manager					
5.10.	Project Brief & Project Program Finalization & Approval	Yes / No	Project Manager Janis Goloveckis Kaspars Sendvals	Project Manager Janis Goloveckis Kaspars Sendvals	Project Manager Janis Goloveckis Kaspars Sendvals					
5.11.	Project Brief & Project Program binded with Contract must be equal to Project Brief and Project Program binded with Commercial Proposal									
6	**Preparation of Commercial Proposal. Internal Approval.**									
6.1.	Legal analysis of the completed Commercial Proposal		Project Manager	Legal Team	Project Manager					
6.2.	Janis Review & Approval		Project Manager	Janis Goloveckis	Janis Goloveckis					
6.3.	Kaspars Review & Approval		Project Manager	Kaspars Sendvals	Kaspars Sendvals					
6.4.	Commercial Proposal Final Approval	Yes / No								
7	**Contract with the Client. Preparation.**					NHE Contract Template				
7.1.	Preparation & Sign of the Guarantee Letter with the Client		Kaspars Sendvals	Project Mannaner Kaspars Sendvals	Project Mannaner Kaspars Sendvals					
7.2.	If the Draft of the Contract exists:									
7.2.1.	Checking the correctness of the Contract & its applications. After it, go to point 7.3.4.		Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
7.3.	If there is no Draft of the Contract exists:									
7.3.1.	Request for the Contract Draft to the Client. If the Client sends the Draft, go to point 7.3.4.		Kaspars Sendvals Janis Goloveckis Project Manager	Kaspars Sendvals Janis Goloveckis Project Manager	Kaspars Sendvals Janis Goloveckis Project Manager					
7.3.2.	If there is no Draft of the Contract from the Client, Project Manager & Legal Team prepares the following applications for the Contract Draft (see call HST)		Project Manager	Project Manager Legal Team	Kaspars Sendvals Janis Goloveckis Project Manager	1. Project Schedule (NHE template) 2. Project Budget 3. Project Brief & Project Program 4. Initial Permit Documentation (IPD)				
7.3.3.	Preparation of the Contract based on the applications provided by Project Manager		Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
7.3.4.	Contract is ready* *: Project Brief & Project Program binded with Contract must be equal to Project Brief and Project Program binded with Commercial Proposal									
8	**Contract with Sub-Contractors (if any) based on Contract with the Client. Preparation.**					NHE Contract Template				
8.1.	Project Manager & Legal Team prepares the following applications for the Sub-Contractors Contract Draft based on Contract with the Client		Project Manager	Project Manager Legal Team	Kaspars Sendvals Janis Goloveckis Project Manager	1. Project Schedule (NHE template) 2. Project Budget 3. Project Brief & Project Program 4. Initial Permit Documentation (IPD)				
8.2.	Preparation of the Contract based on the applications provided by Project Manager *: Project Brief & Project Program binded with Contract must be equal to Project Brief and Project Program binded with Commercial Proposal		Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
9	**Contract with the Client. Approval**									
9.1.	Contract with the Client Approval Initiation		Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
9.2.	Contract & its applications are reviewed by Legal Team & Management Team. If there are no concerns, Project Manager sends Contract to the Client for review. If there are concerns raised by NHE team or the Client, point 9.2. repeats		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
10	**Contract with Sub-Contractors (if any) based on Contract with the Client. Approval.**									
10.1.	Contract with the Client Approval Initiation by Project Manager		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
10.2.	Contract & its applications are reviewed by Legal Team & Management Team. If there are no concerns, Project Manager sends Contract to the Client for review. If there are concerns raised by NHE team or the Client, point 10.2. repeats		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
11	**Contract with the Client. Signing**									
11.1.	Contract with the Client Signing Initiation by Project Manager		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
11.2.	NHE signs the Contract firstly / the Client signs Contract firstly (define the signing procedure)		Kaspars Sendvals	Kaspars Sendvals	Kaspars Sendvals					
11.3.	Sending the Signed Contract to the Client		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
11.4.	Transfering the final Project Brief & Project Program to NHE project team		Project Manager	Project Manager	Project Manager					
11.5.	Signing the final Project Budget with the Client		Kaspars Sendvals	Kaspars Sendvals	Kaspars Sendvals					
12	**Contract with Sub-Contractors (if any). Signing**									
12.1.	Contract with the Client Signing Initiation by Project Manager		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
12.2.	NHE signs the Contract firstly / Sub-Contractor signs Contract firstly (define the signing procedure)		Kaspars Sendvals	Kaspars Sendvals	Kaspars Sendvals					
12.3.	Sending the Signed Contract to Sub-Contractor		Project Manager Kaspars Sendvals Janis Goloveckis	Legal Team Kaspars Sendvals Janis Goloveckis	Kaspars Sendvals Janis Goloveckis					
12.4.	Signing the final Project Budget with Sub-Contractor		Kaspars Sendvals	Kaspars Sendvals	Kaspars Sendvals					
13	**Commercial Proposal & Contract. Sending to the Client for Signing**									
13.1.	Contract is signed with the Client	Yes / No								
13.2.	Commercial Proposal is signed with the Client	Yes / No								
13.3.	Request for discount of CP from the Client (NHE approves it or not)	Yes / No								
13.4.	Project Brief & Project Program is signed with the Client	Yes / No								
14	**Preparation to start of the project**									
14.1.	Assigning Project Team (certain assignees)		Project Manager Kaspars Sendvals Janis Goloveckis	Project Manager Kaspars Sendvals Janis Goloveckis	Project Manager Kaspars Sendvals Janis Goloveckis	Project Team List				
14.2.	Assigning Project Manager (seems irrelevant point, as PM is already assigned at the beginning of P&B stage)					Project Team List				
14.3.	Creation of the Project Folder Structure on NHE Server		Project Manager	Project Manager	Project Manager	Project Folder Structure on NHE Server 1. Contract with the Client				

(Images: Moiseenko, I., 2024)

Stage 1, Preparation & Briefing step-by-step text description.

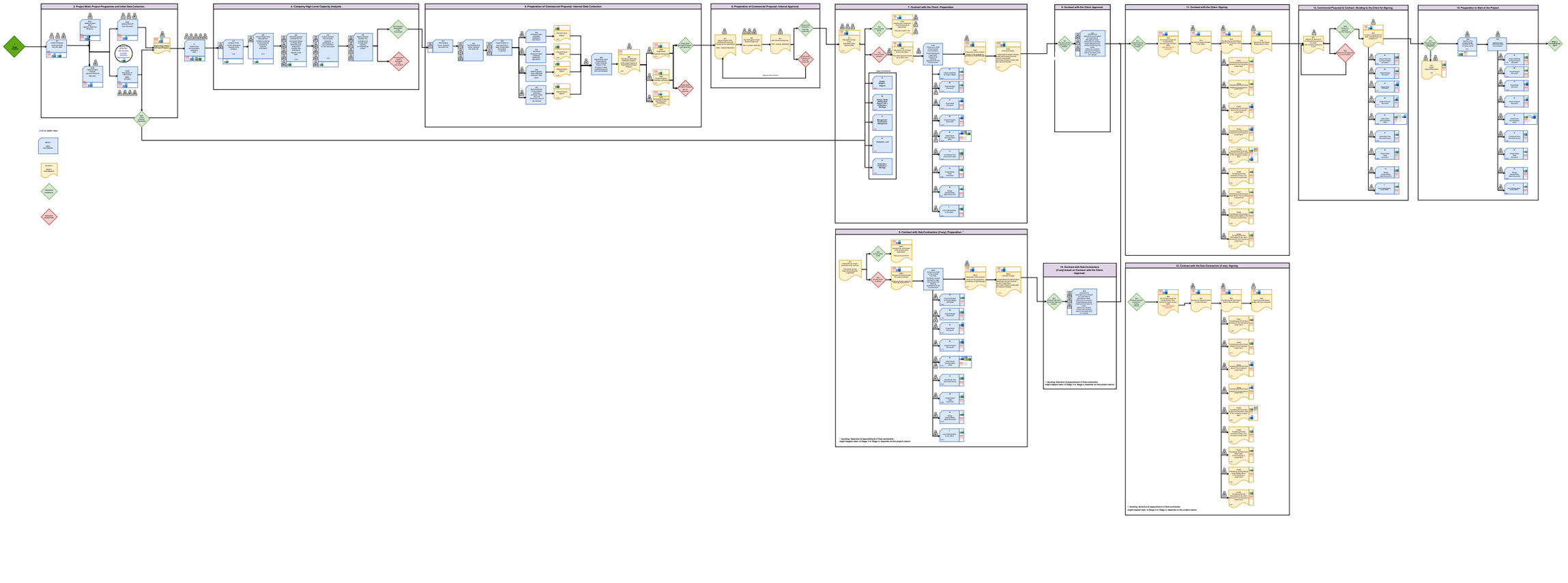
Project Initiation, Preparation & Briefing

			Responsibility Matrix			Templates & Documents				
##	**Activity / Process / Task**	**Go / No Go Choice (Milestone)**	**NHE Member / Department responsible to initiate the Process**	**NHE Member / Department responsible to complete the Process**	**NHE Member / Department responsible to approve & finalize the Process**	**Data / Documents need to be submitted as a result of the Task / Process**	**Presence of Template / Document need to be submitted**	**Who is responsable to prepare the document**	**Who is responsable to fill in the document**	**Approximate Duration of the Process, Days**
Stage 0. Preparation & Briefing										
1	**Project Initiation**									
1.1.	New incoming Design & Engineering project arrives		Kaspars Sendvals Janis Goloveckis							
2	**Project Brief Initial Data Collection**									
2.1.	Collect & register initial input data of the project from the client		Project Manager	Project Manager Design Team	Project Manager	Client Input Data Analysis (project location, type of the building, plot size, room schedule & program, GFA / NFA / LFA and other indicators (see the Template example)	Template_Stage 1_ P&B_Client Input Data Analysis Benchmarks			
2.2.	Getting Project Brief & Project Program (equal to Technical Request) from the Client		Kaspars Sendvals Janis Goloveckis Project Manager	Project Manager	Project Manager	1. Three main documents should be included in Project Brief & Project Program: Fire Report (Fire Ratings) Sound Report (Acoustic Requirements) Energy Efficiency Report (U Values) 2. List of unclear questions regarding Initial Project Brief with Client's answers & explanations				
2.2.1.	Preparation of the Project Brief & Project Program by NHE Team in case of the absence of it on the Client's side (make a template)		Kaspars Sendvals Janis Goloveckis Project Manager	Project Manager	Kaspars Sendvals Janis Goloveckis Project Manager	Project Brief, Project Program (equal to Technical Request)				
2.3.	Organize meetings & workshops with the client to clarify the questions & data required to analyse the workload & capacity for the new project		Project Manager	Project Manager	Project Manager	1. Workshop Registration Data document	Template_Stage 1_ P&B_Workshop Registration Data			
2.4.	Start of the Contract Preparation		Kaspars Sendvals	Legal Team	Kaspars Sendvals					
3	**Initial Permit Documentation Gathering (IPD)**		Project Manager	Project Manager	Project Manager					
3.1.	Property & Legal Documents to the land plot and buildings (structures) located on it									
3.1.1.	Land Plot Purchase / Sale / Lease agreements									
3.1.2.	Governmental Real Estate Statement with the main characterisitics and registered rights to the land plot									
3.1.3.	Governmental Real Estate Statement with the main characterisitics and registered rights to the buildings / structures located on the land plot (if any)									
3.1.4.	Cadastral plan of the land plot									
3.1.5.	Technical plan of the buildings / structures located on the land plot (if any)									
3.2.	Information from territorial planning documents									
3.2.1.	Masterplan of the land plot (Градостроительный план земельного участка)									
3.2.2.	Land use planning project (Проект планировки территории)									
3.2.3.	Land surveying project (Проект межевания территории)									
3.3.	Administrative documents of authorities, permits and approvals									
3.3.1.	Authority decision on preliminary approval of the location of the building									
3.3.2.	Act of selecting a land plot for construction									
3.3.3.	Permission to deviate from the maximum parameters of permitted construction, reconstruction of capital construction projects									
3.3.4.	Permission to demolish a capital construction project, dismantle utility networks									
3.3.5.	Felling permit / permit for transplanting trees and shrubs									
3.3.6.	Coordination of construction with the relevant authorized executive parties of state and municipal authorities, specialized departments									
3.3.7.	Letters and conclusions of authorized control and supervisory parties (letters on the presence/absence of cultural heritage sites and their protection zones on the construction site, conclusions on the absence of minerals in the subsoil under the site of the upcoming construction, certificates on background concentrations of pollutants in the atmospheric air, climatic characteristics of the area), permits from the relevant operating organizations for construction work in areas where underground communications (cable, gas, water, sewer), overhead power lines and communication lines pass, in the right-of-way of railways.									
3.4.	Technical conditions for connection (technological connection) to utility networks									
3.4.1.	Technical conditions for connection (adjacency) to a road (road network)									
3.4.2.	Eechnical conditions for connection to utility networks of the relevant type (electricity supply, water supply and sanitation, heat supply, gas supply, etc.)									
3.4.3.	Special technical conditions (if needed)									

(Images: Moiseenko, I., 2024)

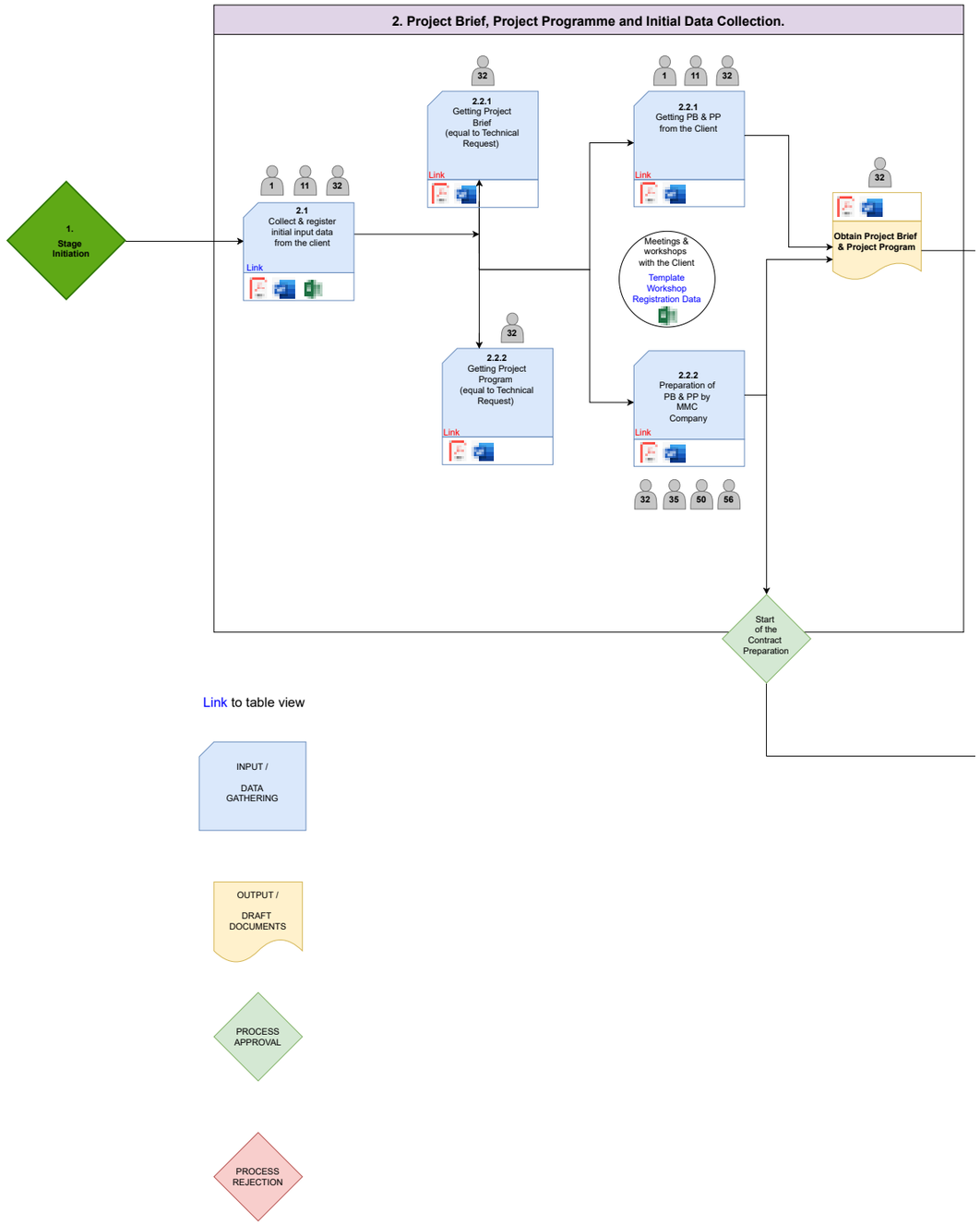
Stage 1, Preparation & Briefing step-by-step text description.

STAGE 1. PREPARATION & BRIEFING.



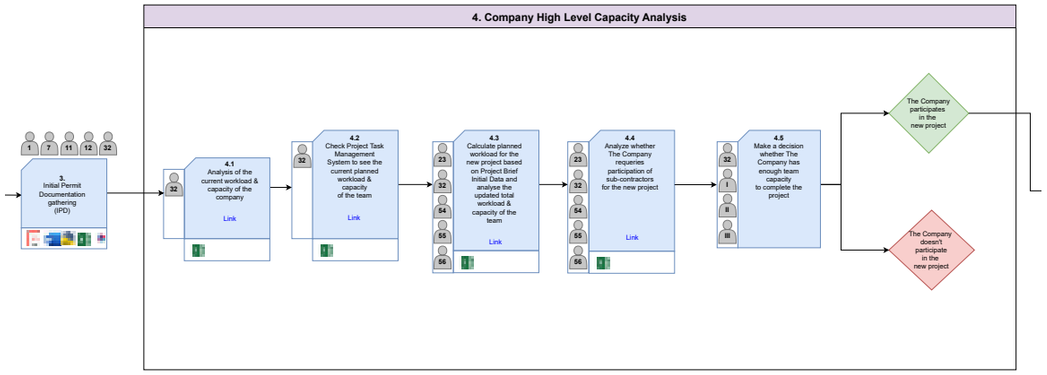
Stage 1. Preparation & Briefing step-by-step infographic description.

(Images: Moiseenko, I., 2024)



Steps 1 & 2.

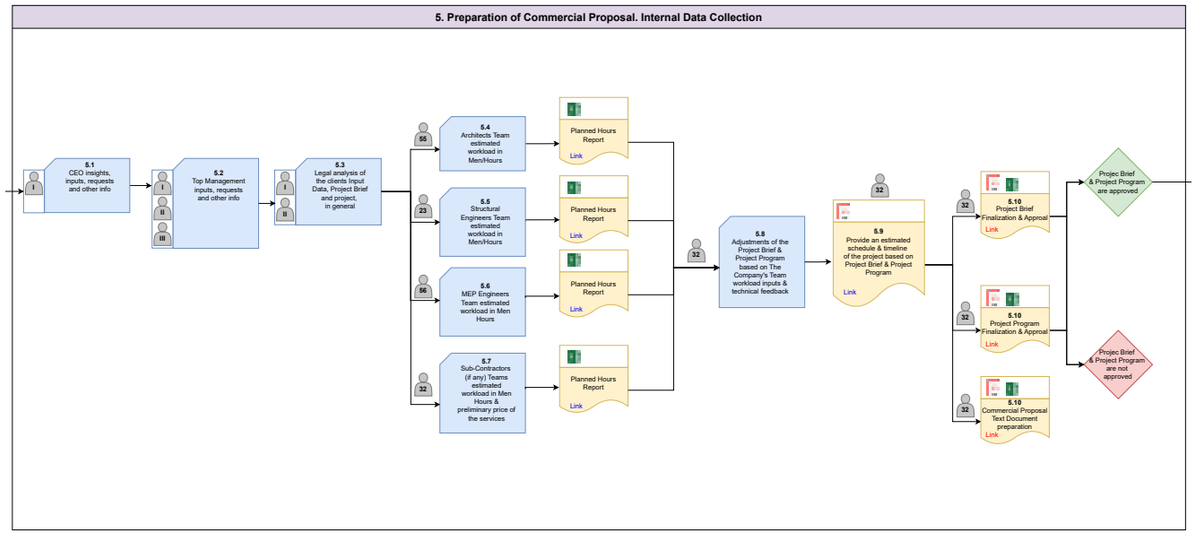
Project Brief initial data collection.



Steps 3 & 4

Initial permit documentation gathering

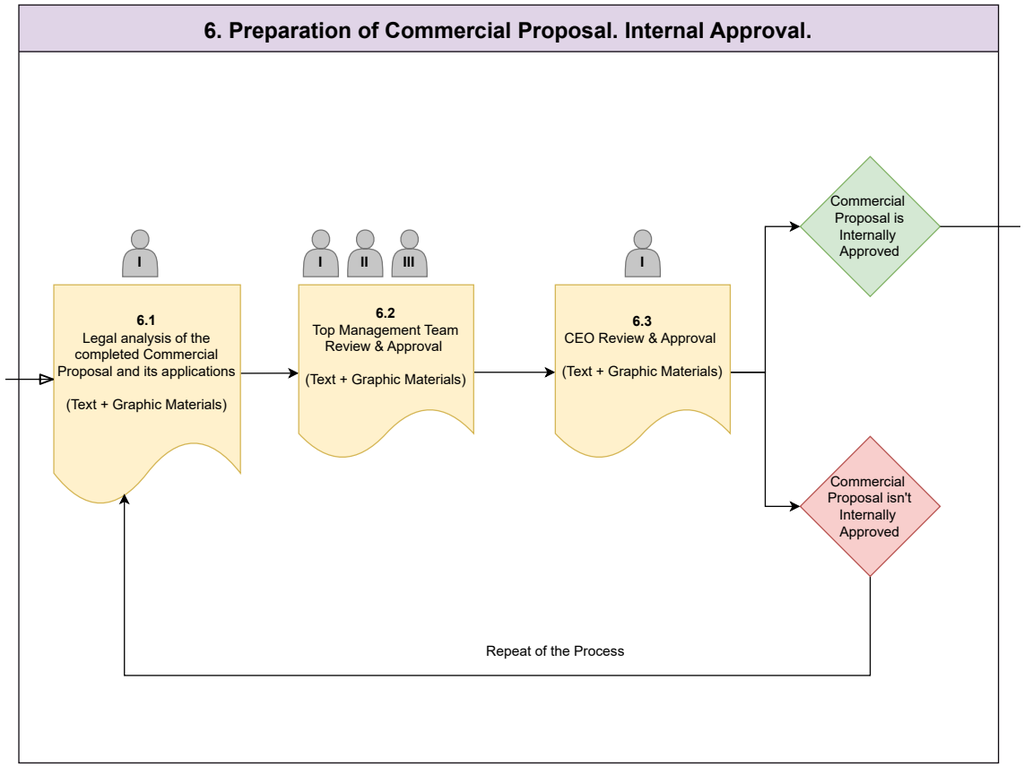
Company high level capacity analysis



Step 5

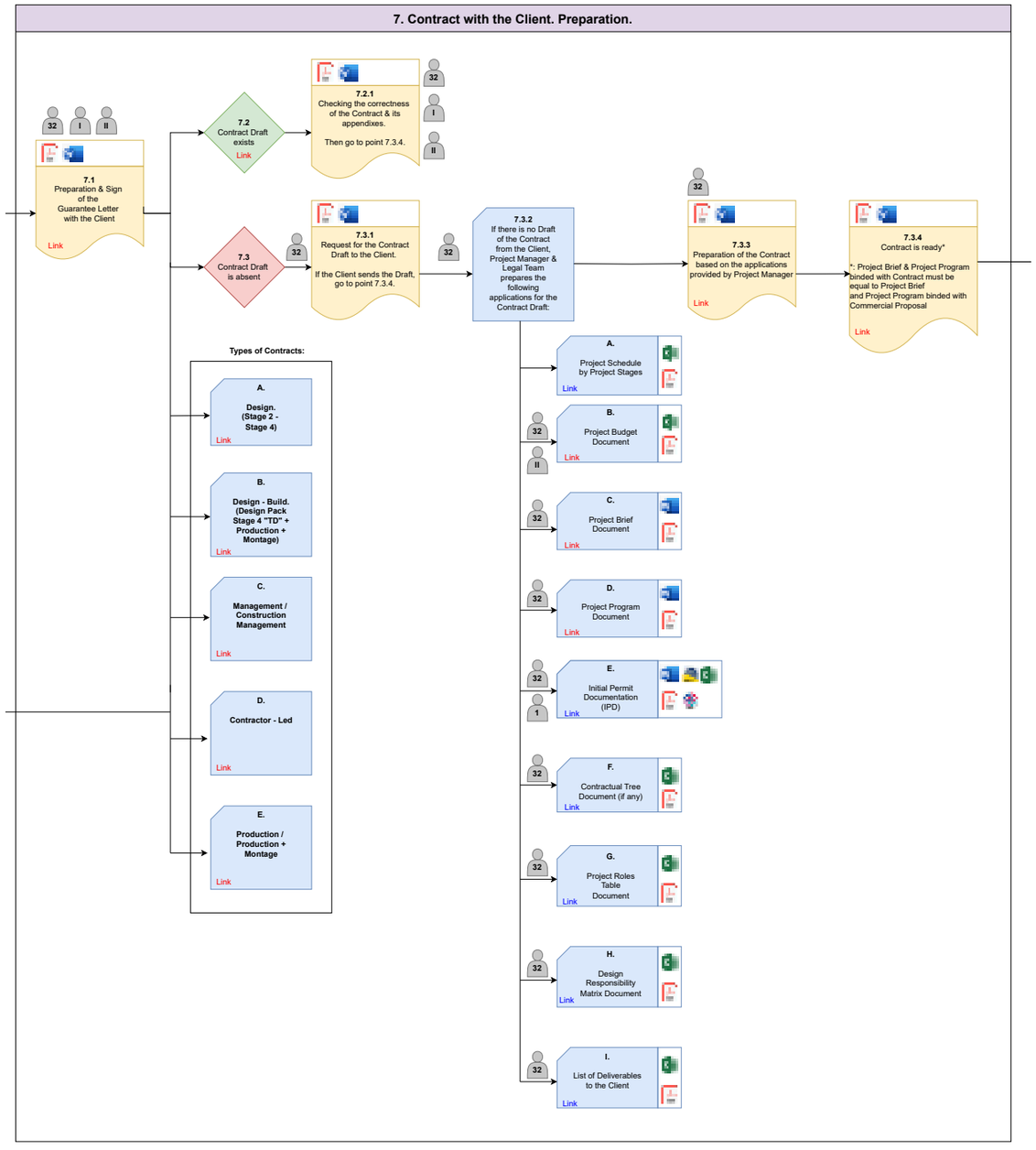
Preparation of commercial proposal

(Images: Moiseenko, I., 2024)



Step 6

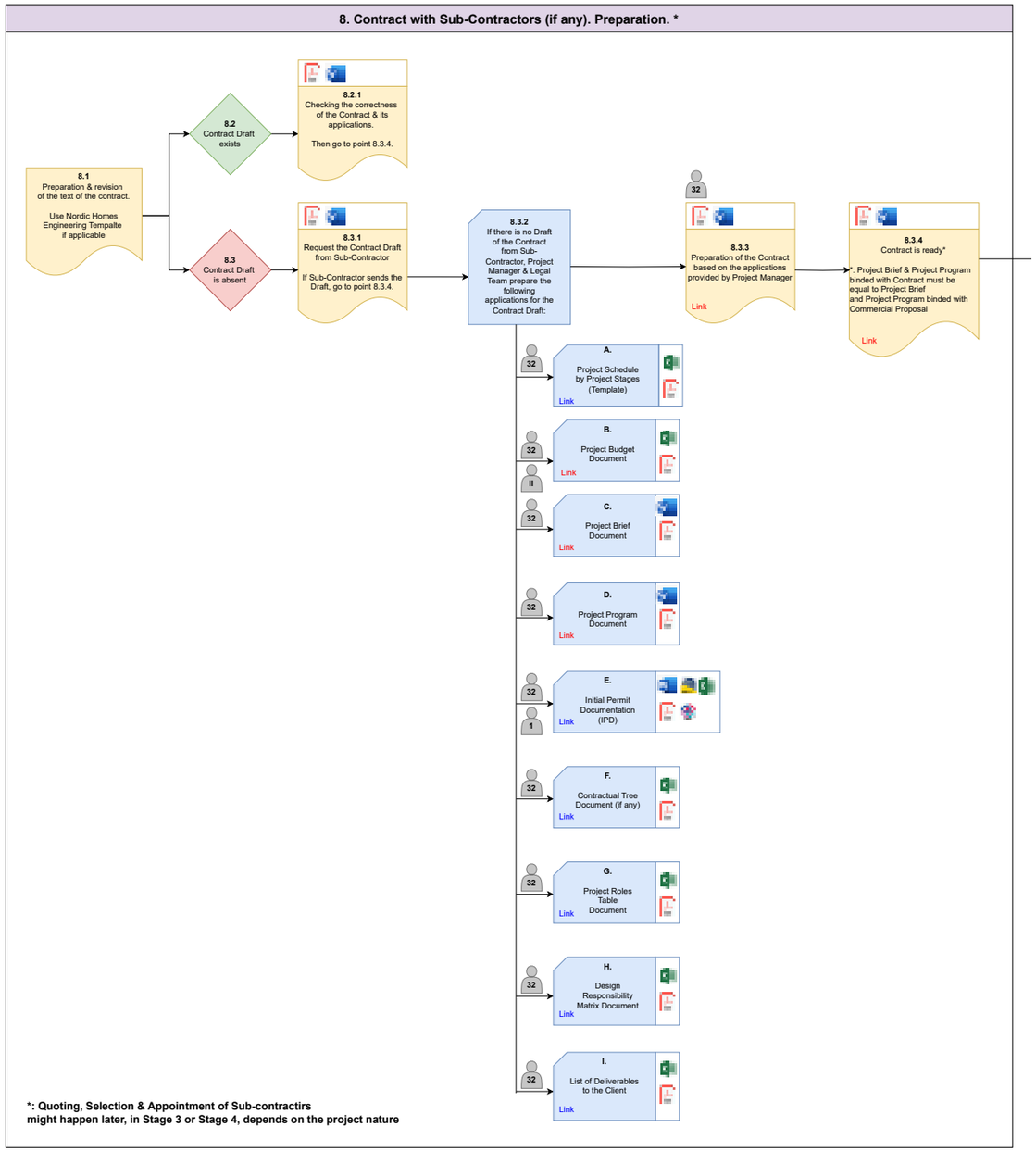
Preparation of commercial proposal



Step 7

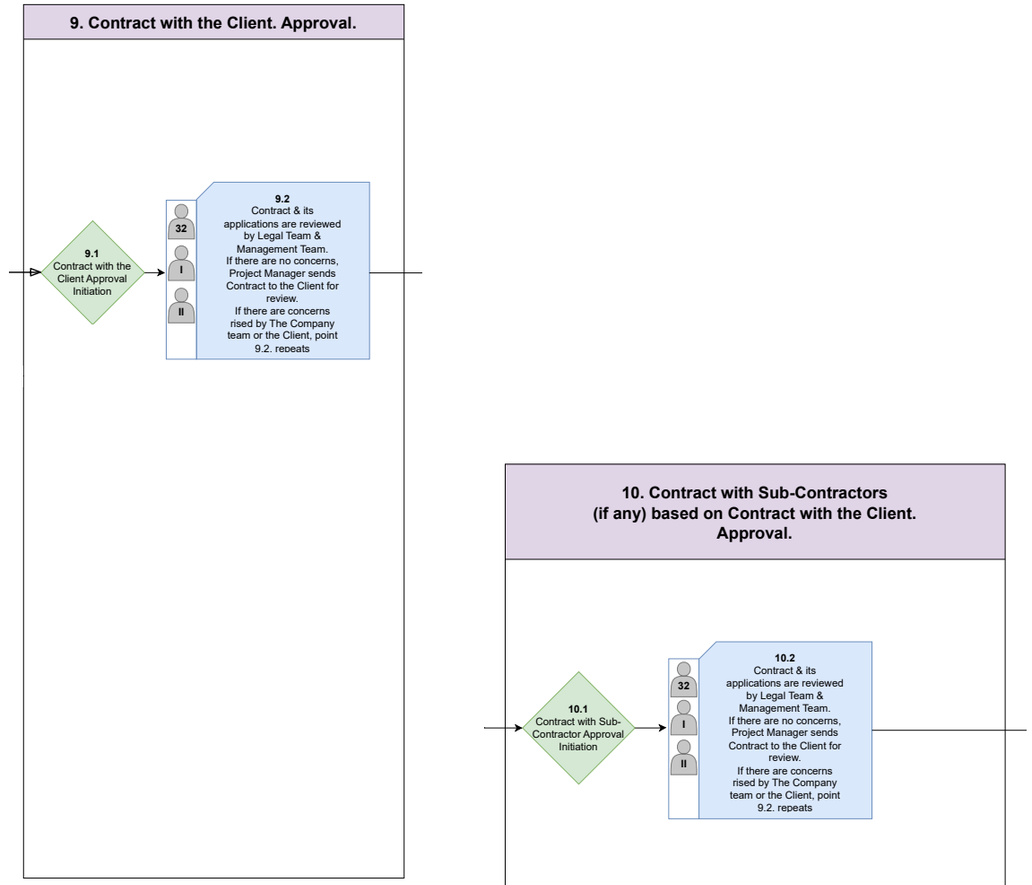
Preparation of the contract with the client

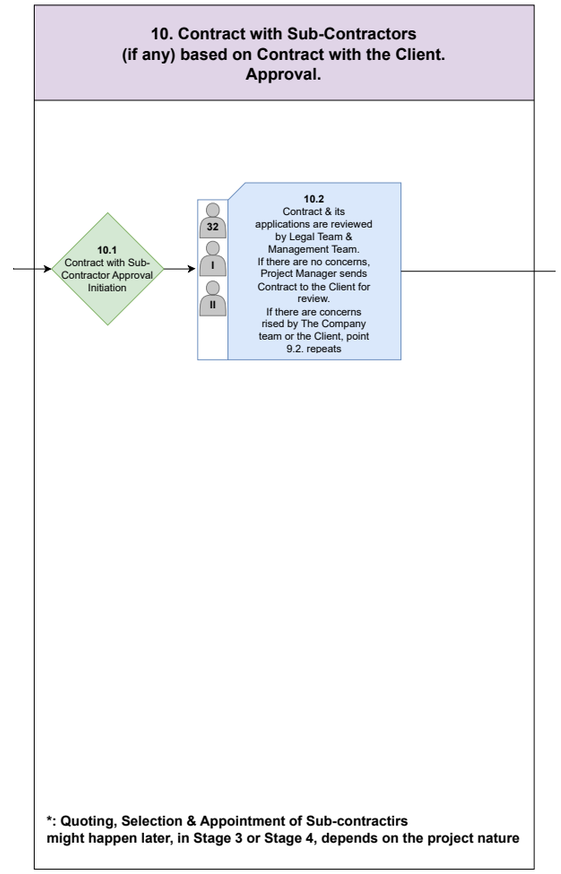
(Images: Moiseenko, I., 2024)



Step 8

Preparation of contract with sub-contractors

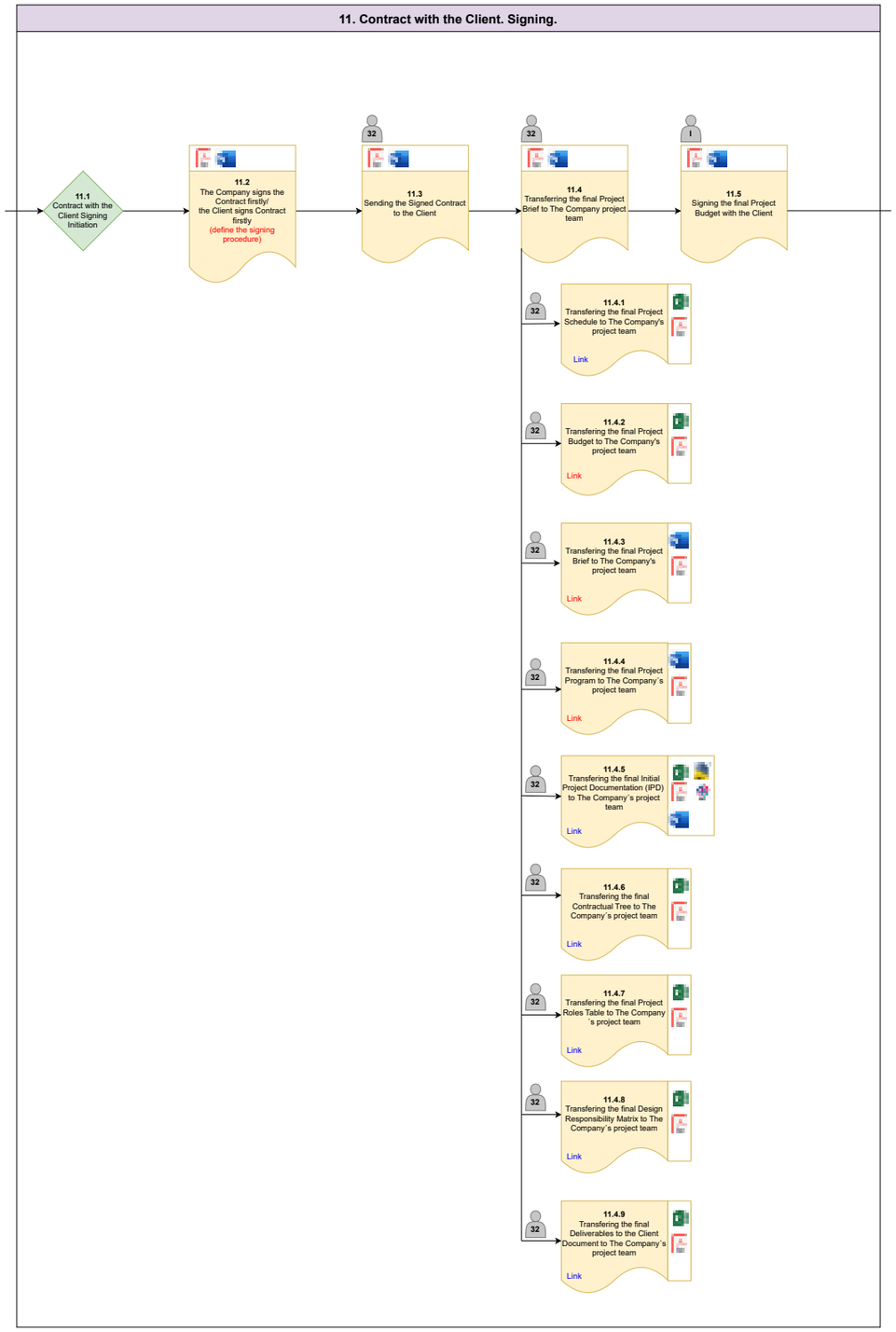




Steps 9 & 10

Approval of the contracts with client and sub-cobtractors

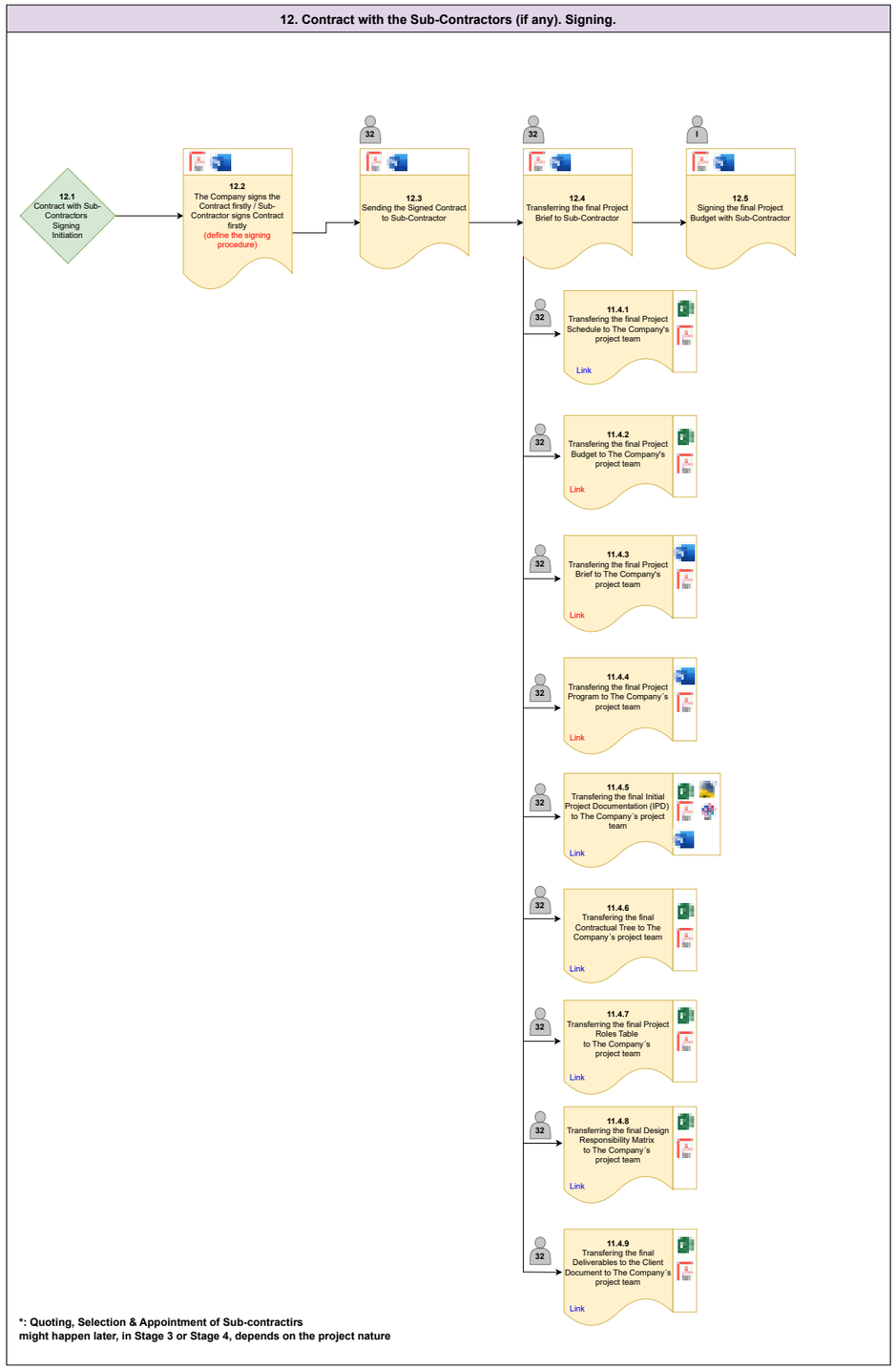
(Images: Moiseenko, I., 2024)



Step 11

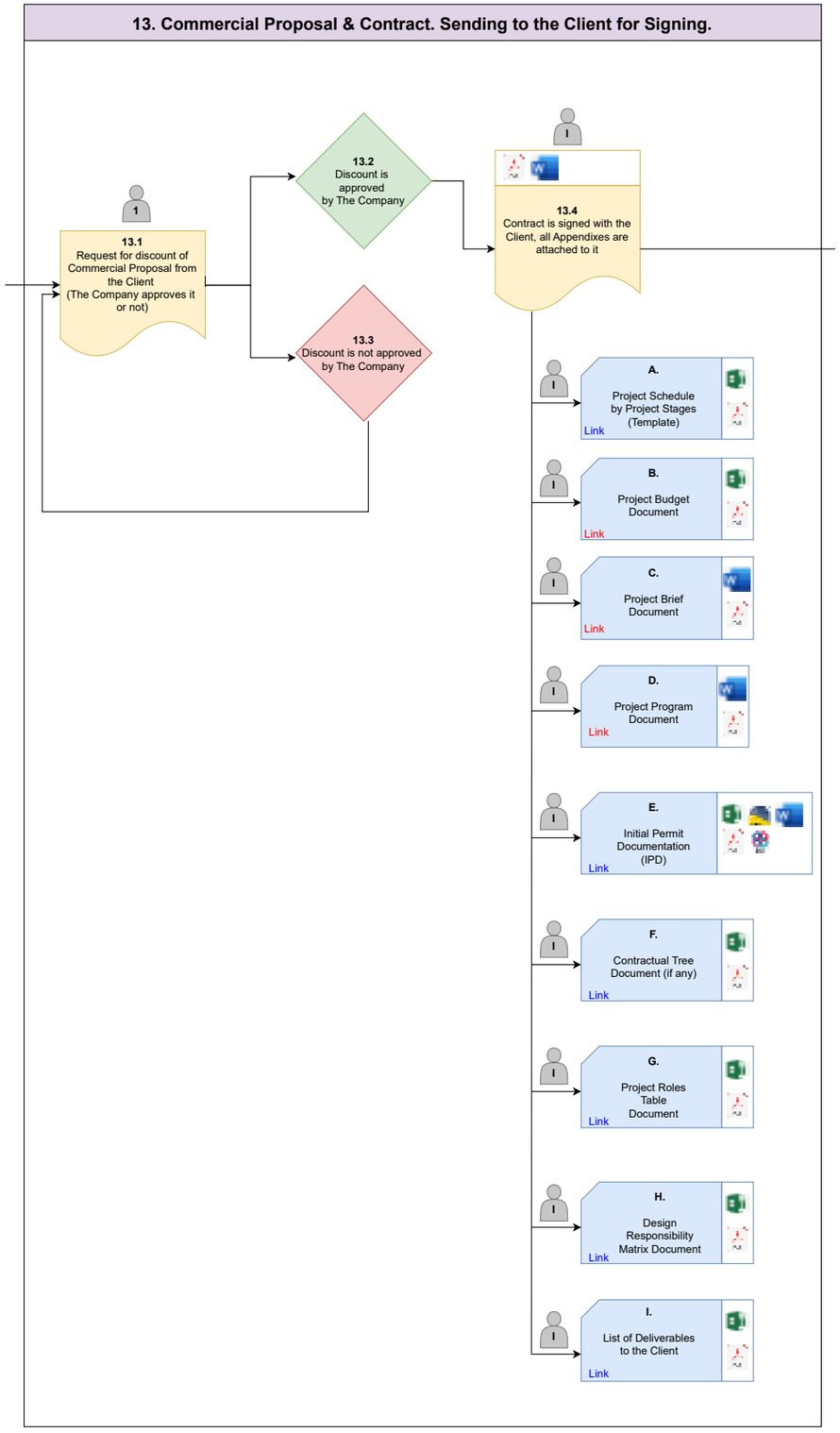
Approval & signing of the contract with the client

(Images: Moiseenko, I., 2024)



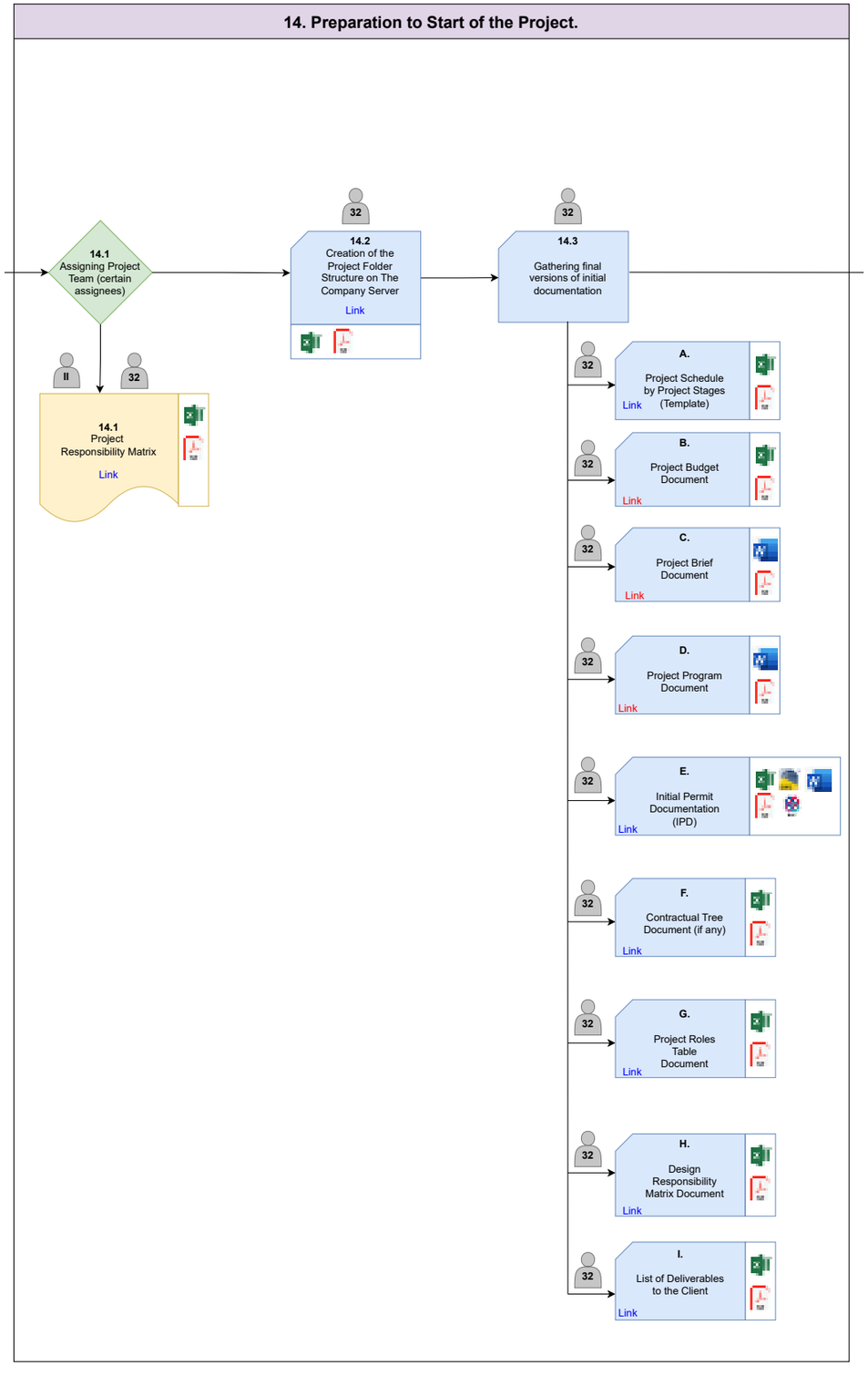
Step 12

Approval & signing of the contracts with sub-contractors



Step 13

Signing of the contract with client



Step 14

Preparation to start of the project

(Images: Moiseenko, I., 2024)

Stage 2. Concept Design



LOD 200

Stage 2, Concept Design, is dedicated to preparation of the first and conceptual design iteration and design package used for ideation phase as well as for getting an approval of the development project by the local Chief Architect of the city, area or municipality to which the land plot belongs to.

The next several pages represent process step-by-step map of Concept Design stage alongside with the main templates of the documents need to be used here, such as:

- Design Team Questions & Answers registration
- Project data registration table
- Project Cost Calculator for Feasibility Studies
- To be continued

Back to content

STAGE 2. CONCEPT DESIGN

##	Activity / Process / Task	Go / No Go Choice (Milestone)	Responsibility Matrix: NHE Member / Department responsible to initiate the Process	Responsibility Matrix: NHE Member / Department responsible to complete the Process	Responsibility Matrix: NHE Member / Department responsible to approve & finalize the Process	Templates & Documents: Data / Documents need to be submitted as a result of the Task / Process	Templates & Documents: Presence of Template / Document need to be submitted	Templates & Documents: Who is responsable to prepare the document	Templates & Documents: Who is responsable to fill in the document	Templates & Documents: Level of Detail (LOD)	Templates & Documents: Level of Information (LOI)	Approximate Duration of the Process, Days
1	**Analysis & Review of the Project Brief & Project Program**											
1.1.	Analyse Project Brief & Project Program by NHE Design Team for questions and unclear areas		Design Team	Design Team	Design Team							
1.2.	Prepare Q&A Online Document to register and solve all the questions & comments during the design stage from all the team members		Project Manager	Design Team	Project Manager		3. Design Team Q&A Registration Data					
1.3.	Define all the inputs & criteria to start Concept Design. Register them in Project Data Registration & Design Responsibility Matrix incorporating Information Exchanges (DRM) documents	Yes / No	Design Team Project Manager	Design Team Project Manager	Design Team Project Manager	2. Design Responsibility Matrix (DRM)	4. Project Data Registration Table					
1.4.	Analise Existing Design Concept from external architects to start modularization / prefabrication process (if applicable)	Yes / No	Design Team	Design Team	Design Team							
2	**Pre-Concept Design Stage**											
2.1.	**General Research & Data Collection**											
2.1.1.	Mood Board & References design		Design Team	Design Team	Design Team							
2.1.2.	Users profiles analysis		Design Team	Design Team	Design Team							
2.1.3.	Research & Research design (if required)		Design Team	Design Team	Design Team							
2.2.	**Site Analysis & Research**											
2.2.1.	Insolation Analysis		Design Team	Design Team	Design Team							
2.2.2.	Site Topography analysis		Design Team	Design Team	Design Team							
2.2.3.	Surroundings Analysis & Research (surrounded buildings, artefacts, red lines, heights restrictions, etc)		Design Team	Design Team	Design Team							
2.2.4.	Geodetic and topographic research		Client Team	Client Team	Client Team							
2.2.5.	Geotechnical investigation		Client Team	Client Team	Client Team							
2.2.6.	Photo Fixation		Design Team	Design Team	Design Team							
2.3.	**Masterplan**											
2.3.1.	Conceptual Masterplan & Urban Planning (if applicable)											
2.4.	**Landscape**											
2.4.1.	Landscape analysis & conceptual design											
2.5.	**Massing Model options design with modules / prefab elements' dimensions & limitations in mind**											
2.4.1.	Design of the massing models options	Yes / No	Design Team	Design Team	Design Team							
2.4.2.	Pre-Selection of the Massing Model options within Design Team	Yes / No	Design Team	Design Team	Design Team							
2.6.	**Modularization / Prefabrication of the Massing Model based on modules / prefab elements' dimensions & limitations**											
2.6.1.	Design of the modularized / panelized Massing Models options											
2.6.2.	Pre-Selection of the Modularized / Panelized Massing Model options within Design Team	Yes / No	Design Team	Design Team	Design Team							
2.6.3.	Architectural Design Team inputs & feedback for modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team							
2.6.4.	Structural Engineering Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team							
2.6.5.	MEP Engineering Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team							
2.6.6.	Logistics Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team							
2.6.7.	On-Site Montage Team inputs & feedback on modularization / prefabrication	Yes / No										
2.6.8.	Production Team inputs & feedback on modularization / prefabrication	Yes / No										
2.6.9.	Preliminary Build-Ups Design of the Walls, Floors & Ceilings (could be taken from NH previous projects) to calculate the weights of the modules and approximate costs		Design Team	Design Team	Design Team							
2.7.	**Visualizations & Renderings**		Design Team	Design Team	Design Team							
2.8.	**Presentation Preparation & Assembly**		Design Team	Design Team	Design Team	1. Site Analysis & Research 2. Moodboard & References 3. Users profiles & analysis 4. Options & variations of the massing model design & philosophy of the project 5. Step-by-Step Form-Factor & Assembly scheme of the project 6. Massing Model 7. Modularization options with inputs & logics 8. Types & parameters of the modules / prefab elements 9. Visualisations & Renderings 10. Feasibility studies & economics data	1. Black Beach Resort Concept Design Architectural Album				
2.9.	**Client Review & Approval of the Massing Model & Modularization / Prefabrication Scheme**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team	Client Feedback Registration Report						
2.9.1.	Sending Massing Model & Modularization to the Client for approval		Project Manager	Project Manager	Project Manager	Sub-Stage Approval Document signed						
2.9.2.	Getting Client's feedback & comments		Project Manager	Project Manager	Project Manager							
2.9.3.	Adjust Massing Model & Modularization / Prefabrication according to Client feedback (if any)		Design Team	Design Team	Design Team							
2.9.4.	Confirm & Freeze the final version of Massing Model & Modularization / Prefabrication with the Client	Yes / No	Project Manager	Project Manager	Project Manager							
3	**Concept Design Stage**											
3.1.	**Design Revit Model based on Pre-Concept Stage inputs (LOD 200)**											
3.1.1.	**Architecture** Prefabrication / Panelization of the architectural concept (2D & 3D model design) Architectural Inputs & logics for prefabrication Structural Inputs & logics for prefabrication MEP Inputs & logics for prefabrication Logistics / Economics Feasibility Inputs & logics for prefabrication Detalization of panelaized concept (3D Revit model design) Freezing of the types of modules / prefab elements with the client / within the team Floor Plans Sections Elevations Roof Plans Doors & Windows Schedules Architectural Build-Ups Design terrain & topography (if applicable) Design surrounded buildings, artefacts and all the objects in Revit model which are important for design Provide Room Legend for all the parts of the Revit model & Area calculations											
3.1.2.	**Interior Design** Rooms interior design layouts Furniture specifications & legends Additional details (upon scope of work)											
3.1.3.	**Facade Design** Facade Elements Design Rainwater Elements Design Roof Safety System Layout Design Specific Assembly Requirements (e.g., fixings for safety railings, scafoldings)											
3.1.4.	**Structure** Define Principal Structural System & its components. Freezing Principal Structural System Line and point loads onto foundations Building static calculations for municipality (summary of static calculations) Timber Frame / Metal Frame / Concrete Static Calculations Timber / Metal / Concrete structural element layouts Seismic Design (if applicable) Structural Build-Ups											
3.1.5.	**MEP**											
AVK-A	Heating Systems Layouts											
AVK-V	Ventilation Systems Layouts & Calculations											
AVK-K	Climate Control System											
DN	Smoke Extraction Systems											
AAT	Cooling Supply Systems											
DT	Drainage Engineering Networks											
EL	Power supply (internal)											
ELT	Power supply (external)											
ES-P	Temporary energy certificate											
ESS	Electronic communication systems											
ESS- CI	Centralized notification system											
ESS-DA	Smoke protection											
ESS- PK	Access control											
ESS-AS	Security alarm											
ESS-TK	Engineering networks of electronic communications											
ESS-VAS	Control and automation systems											
ESS-VN	Video surveillance											
EST	Electronic communication systems (external)											
GA	Gas supply (internal)											
GAT	Gas supply (external)											
SAT	Heating (external)											
SP	Sprinkler system											
TN	Technological part											
UAS	Fire extinguishing automation systems											
UATS	Fire detection and alarm systems											
UK	Water supply and sewerage (internal)											
UKT	Water supply and sewerage (external)											
UN	Water drainage											
VAP	**Environmental protection measures**											
3.1.6.	**Client Review of the Revit model (LOD 200) & related materials**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team							
3.2.	**Material Takeoff Calculations**											
3.2.1.	Create Specification Schedules & Tables with material takeoffs and related quantitative parameters (on high concept level)		Design Team	Design Team	Design Team							
3.3.	**Cost Calculations**											
3.3.1.	Cost Calculations of the project parts & components											
3.4.	**Client Feedback on the Concept Design Stage materials**											
3.4.1.	Client comments & feedback on Concept Design Stage materials	Yes / No	Client Team	Client Team	Client Team	Client Feedback Registration Document						
3.4.2.	Adjustments & Corrections of the Client feedback	Yes / No	Design Team	Design Team	Design Team							
3.4.3.	Client approval & signing of the Concept Design Stage Report	Yes / No	Client Team	Client Team	Client Team	Stage Report for Signed Off						
3.5.	**Submission of Concept Design Stage to the City / Area Chief Architect / Council for approval**	Yes / No										
3.5.1.	Submission of Concept Design Stage to the City / Area Chief Architect / Council for approval	Yes / No	Client Team	Client Team	Client Team							
3.5.2.	Approval of the Concept Design Stage by the City / Area Chief Architect / Council	Yes / No	Local Authorities	Local Authorities	Local Authorities							

Stage 2 Concept Design.
Step-by-step description of all materials need to be done. Table view

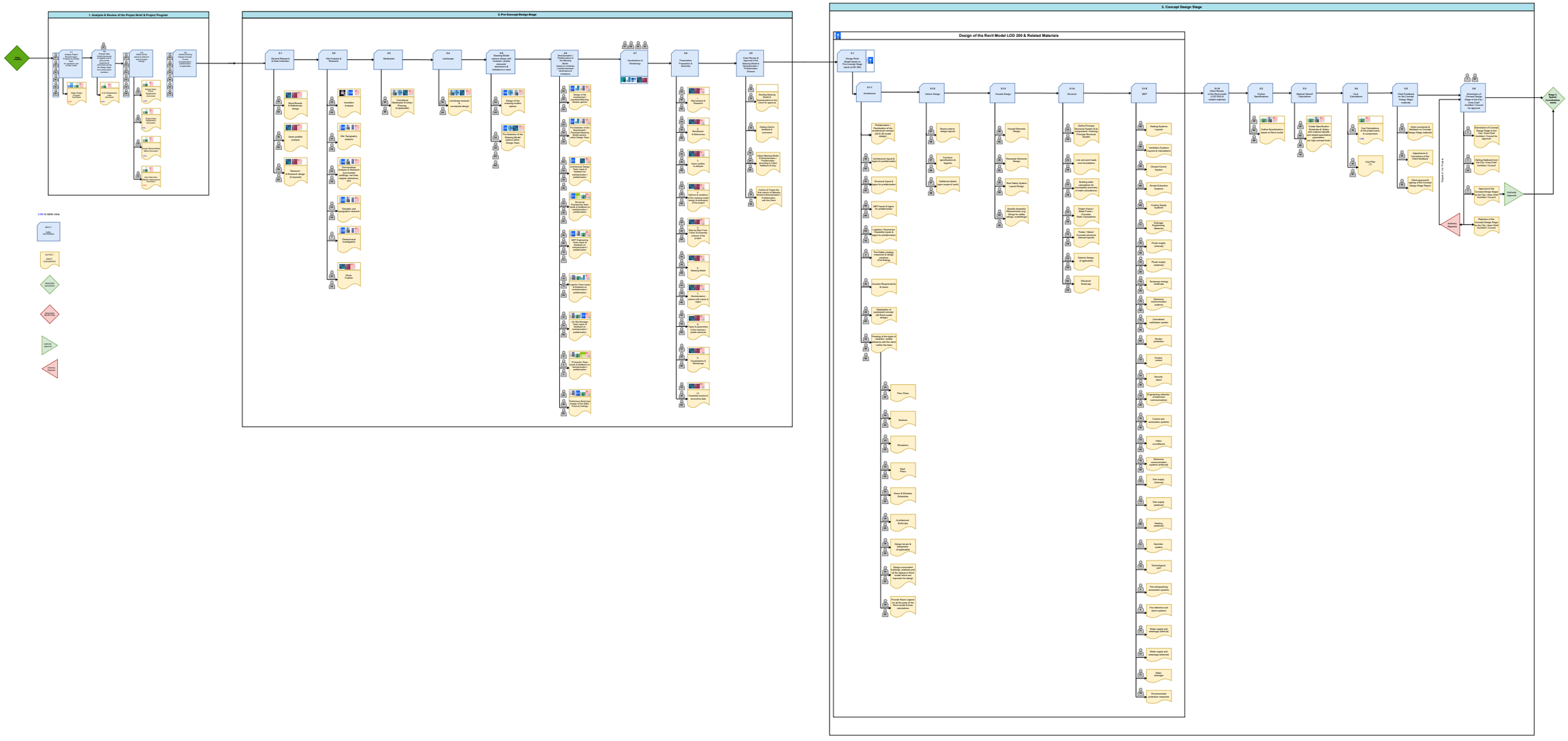
(Images: Moiseenko, I., 2024)

STAGE 2. CONCEPT DESIGN

##	Activity / Process / Task	Go / No Go Choice (Milestone)	Responsibility Matrix: NHE Member / Department responsible to initiate the Process	Responsibility Matrix: NHE Member / Department responsible to complete the Process	Responsibility Matrix: NHE Member / Department responsible to approve & finalize the Process	Tem: Data / Documents need to be submitted as a result of the Task / Process	Tem: Presence of Template / Document need to be submitted
1	**Analysis & Review of the Project Brief & Project Program**						
1.1.	Analyse Project Brief & Project Program by NHE Design Team for questions and unclear areas		Design Team	Design Team	Design Team		
1.2.	Prepare Q&A Online Document to register and solve all the questions & comments during the design stage from all the team members		Project Manager	Design Team	Project Manager		3. Design Team Q&A Registration Data
1.3.	Define all the inputs & criteria to start Concept Design. Register them in Project Data Registration & Design Responsibility Matrix incorporating Information Exchanges (DRM) documents	Yes / No	Design Team Project Manager	Design Team Project Manager	Design Team Project Manager	2. Design Responsibility Matrix (DRM)	4. Project Data Registration Table
1.4.	Analise Existing Design Concept from external architects to start modularization / prefabrication process (if applicable)	Yes / No	Design Team	Design Team	Design Team		
2	**Pre-Concept Design Stage**						
2.1.	**General Research & Data Collection**						
2.1.1.	Mood Board & References design		Design Team	Design Team	Design Team		
2.1.2.	Users profiles analysis		Design Team	Design Team	Design Team		
2.1.3.	Research & Research design (if required)		Design Team	Design Team	Design Team		
2.2.	**Site Analysis & Research**						
2.2.1.	Insolation Analysis		Design Team	Design Team	Design Team		
2.2.2.	Site Topography analysis		Design Team	Design Team	Design Team		
2.2.3.	Surroundings Analysis & Research (surrounded buildings, artefacts, red lines, heights restrictions, etc)		Design Team	Design Team	Design Team		
2.2.4.	Geodetic and topographic research		Client Team	Client Team	Client Team		
2.2.5.	Geotechnical investigation		Client Team	Client Team	Client Team		
2.2.6.	Photo Fixation		Design Team	Design Team	Design Team		
2.3.	**Masterplan**						
2.3.1.	Conceptual Masterplan & Urban Planning (if applicable)						
2.4.	**Landscape**						
2.4.1.	Landscape analysis & conceptual design						
2.5.	**Massing Model options design with modules / prefab elements' dimensions & limitations in mind**						
2.4.1.	Design of the massing models options	Yes / No	Design Team	Design Team	Design Team		
2.4.2.	Pre-Selection of the Massing Model options within Design Team	Yes / No	Design Team	Design Team	Design Team		
2.6.	**Modularization / Prefabrication of the Massing Model based on modules / prefab elements' dimensions & limitations**						
2.6.1.	Design of the modularized / panelized Massing Models options						
2.6.2.	Pre-Selection of the Modularized / Panelized Massing Model options within Design Team	Yes / No	Design Team	Design Team	Design Team		
2.6.3.	Architectural Design Team inputs & feedback for modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team		
2.6.4.	Structural Engineering Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team		
2.6.5.	MEP Engineering Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team		
2.6.6.	Logistics Team inputs & feedback on modularization / prefabrication	Yes / No	Design Team	Design Team	Design Team		
2.6.7.	On-Site Montage Team inputs & feedback on modularization / prefabrication	Yes / No					
2.6.8.	Production Team inputs & feedback on modularization / prefabrication	Yes / No					
2.6.9.	Preliminary Build-Ups Design of the Walls, Floors & Ceilings (could be taken from NH previous projects) to calculate the weights of the modules and approximate costs		Design Team	Design Team	Design Team		
2.7.	**Visualizations & Renderings**		Design Team	Design Team	Design Team		
2.8.	**Presentation Preparation & Assembly**		Design Team	Design Team	Design Team	1. Site Analysis & Research 2. Moodboard & References 3. Users profiles & analysis 4. Options & variations of the massing model design & philosophy of the project 5. Step-by-Step Form-Factor & Assembly scheme of the project 6. Massing Model 7. Modularization options with inputs & logics 8. Types & parameters of the modules / prefab elements 9. Visualisations & Renderings 10. Feasibility studies & economics data	1. Black Beach Resort Concept Design Architectural Album
2.9.	**Client Review & Approval of the Massing Model & Modularization / Prefabrication Scheme**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team	Client Feedback Registration Report	
2.9.1.	Sending Massing Model & Modularization to the Client for approval		Project Manager	Project Manager	Project Manager	Sub-Stage Approval Document signed	
2.9.2.	Getting Client's feedback & comments		Project Manager	Project Manager	Project Manager		
2.9.3.	Adjust Massing Model & Modularization / Prefabrication according to Client feedback (if any)		Design Team	Design Team	Design Team		
2.9.4.	Confirm & Freeze the final version of Massing Model & Modularization / Prefabrication with the Client	Yes / No	Project Manager	Project Manager	Project Manager		
3	**Concept Design Stage**						
3.1.	**Design Revit Model based on Pre-Concept Stage inputs (LOD 200)**						
3.1.1.	**Architecture** Prefabrication / Panelization of the architectural concept (2D & 3D model design) Architectural Inputs & logics for prefabrication Structural Inputs & logics for prefabrication MEP Inputs & logics for prefabrication Logistics / Economics Feasibility Inputs & logics for prefabrication Detalization of panelaized concept (3D Revit model design) Freezing of the types of modules / prefab elements with the client / within the team Floor Plans Sections Elevations Roof Plans Doors & Windows Schedules Architectural Build-Ups Design terrain & topography (if applicable) Design surrounded buildings, artefacts and all the objects in Revit model which are important for design Provide Room Legend for all the parts of the Revit model & Area calculations						
3.1.2.	**Interior Design** Rooms interior design layouts Furniture specifications & legends Additional details (upon scope of work)						
3.1.3.	**Facade Design** Facade Elements Design Rainwater Elements Design Roof Safety System Layout Design Specific Assembly Requirements (e.g., fixings for safety railings, scafoldings)						
3.1.4.	**Structure** Define Principal Structural System & its components. Freezing Principal Structural System Line and point loads onto foundations Building static calculations for municipality (summary of static calculations) Timber Frame / Metal Frame / Concrete Static Calculations Timber / Metal / Concrete structural element layouts Seismic Design (if applicable) Structural Build-Ups						
3.1.5.	**MEP**						
AVK-A	Heating Systems Layouts						
AVK-V	Ventilation Systems Layouts & Calculations						
AVK-K	Climate Control System						
DN	Smoke Extraction Systems						
AAT	Cooling Supply Systems						
DT	Drainage Engineering Networks						
EL	Power supply (internal)						
ELT	Power supply (external)						
ES-P	Temporary energy certificate						
ESS	Electronic communication systems						
ESS- CI	Centralized notification system						
ESS-DA	Smoke protection						
ESS- PK	Access control						
ESS-AS	Security alarm						
ESS-TK	Engineering networks of electronic communications						
ESS-VAS	Control and automation systems						
ESS-VN	Video surveillance						
EST	Electronic communication systems (external)						
GA	Gas supply (internal)						
GAT	Gas supply (external)						
SAT	Heating (external)						
SP	Sprinkler system						
TN	Technological part						
UAS	Fire extinguishing automation systems						
UATS	Fire detection and alarm systems						

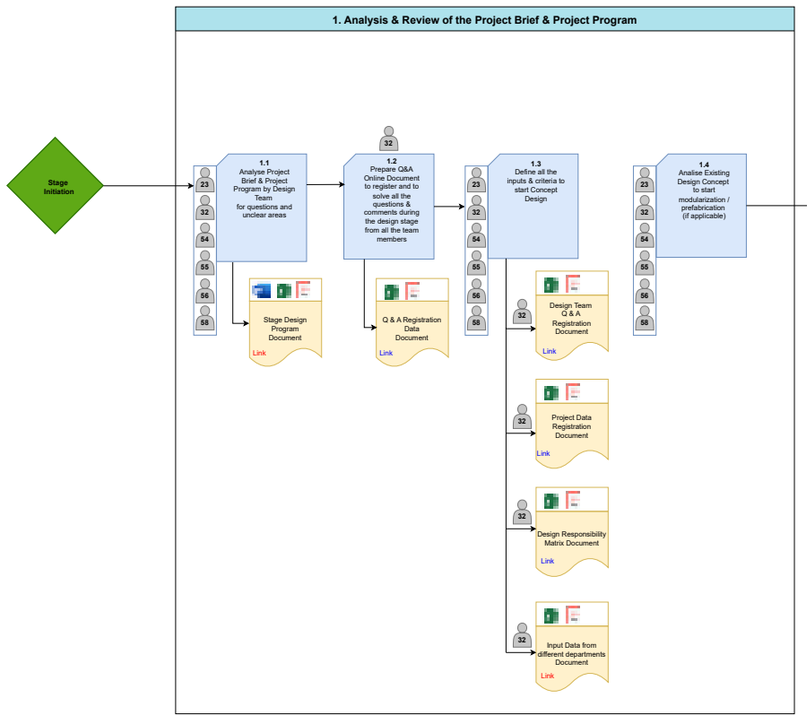
Stage 2 Concept Design.
Step-by-step description of all materials need to be done. Table view (zoom-in)

STAGE 2. CONCEPT DESIGN. (LOD 200)



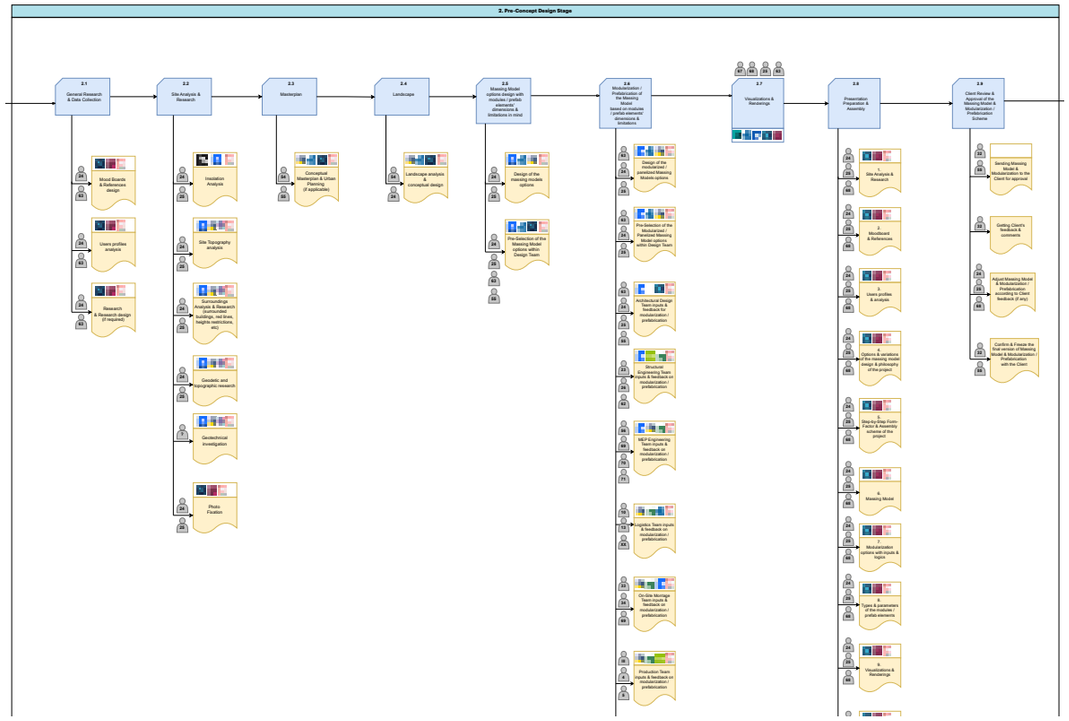
Stage 2, Concept Design step-by-step infographic view.

(Image: Moiseenko, I., 2024)



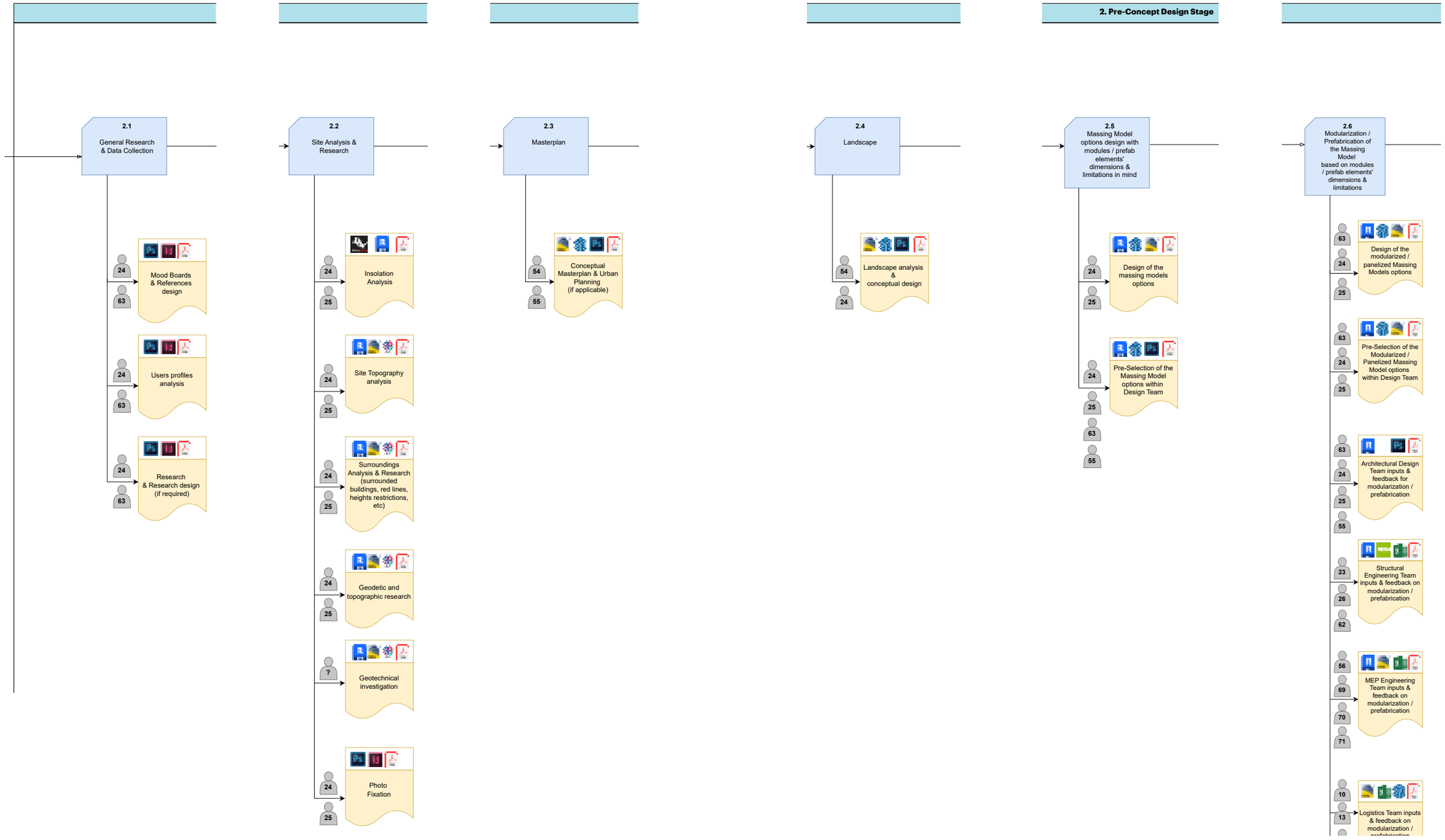
Step 1.
Analysis & Review
of the Project Brief & Project Program

(Image: Moiseenko, I., 2024)



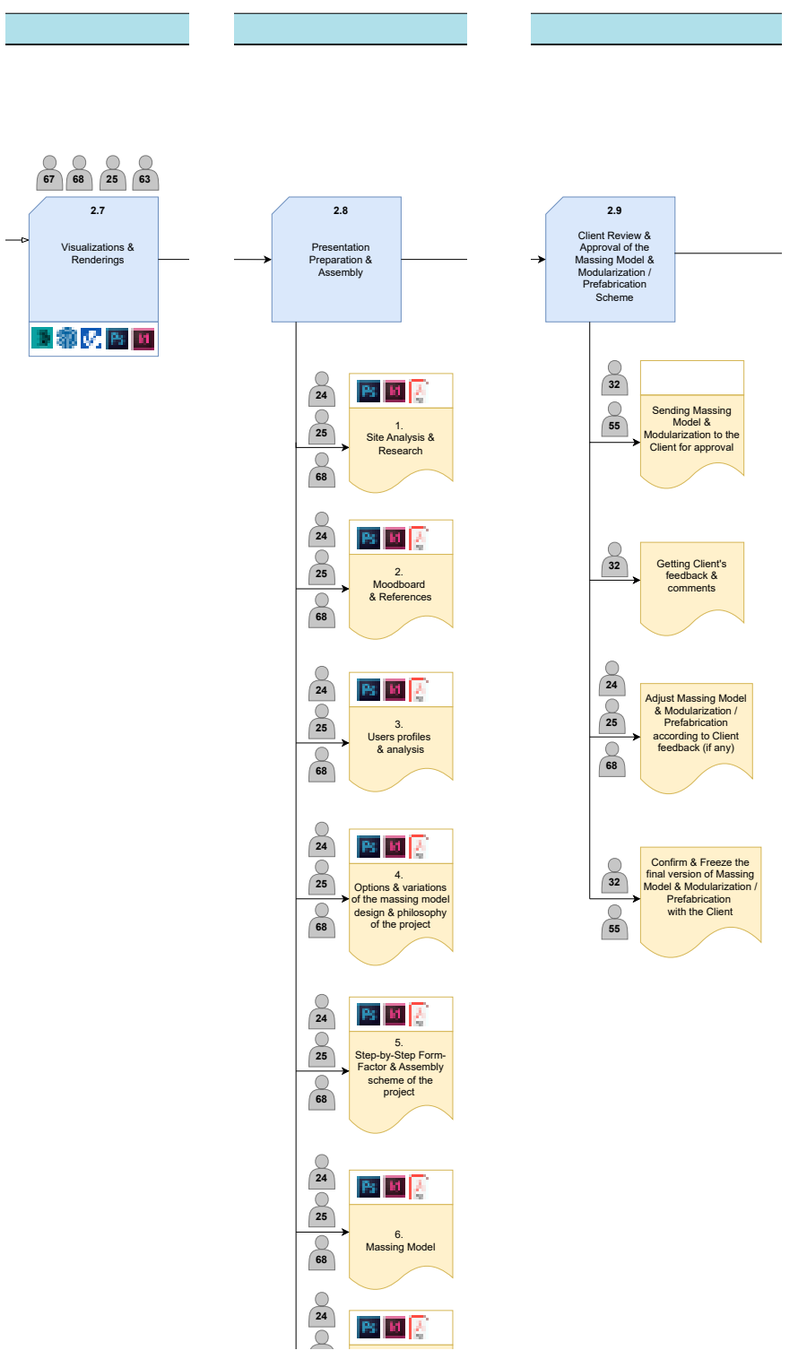
Step 2.
Pre-Concept Dersign Stage.
Steps & Deliverables

(Image: Moiseenko, I., 2024)



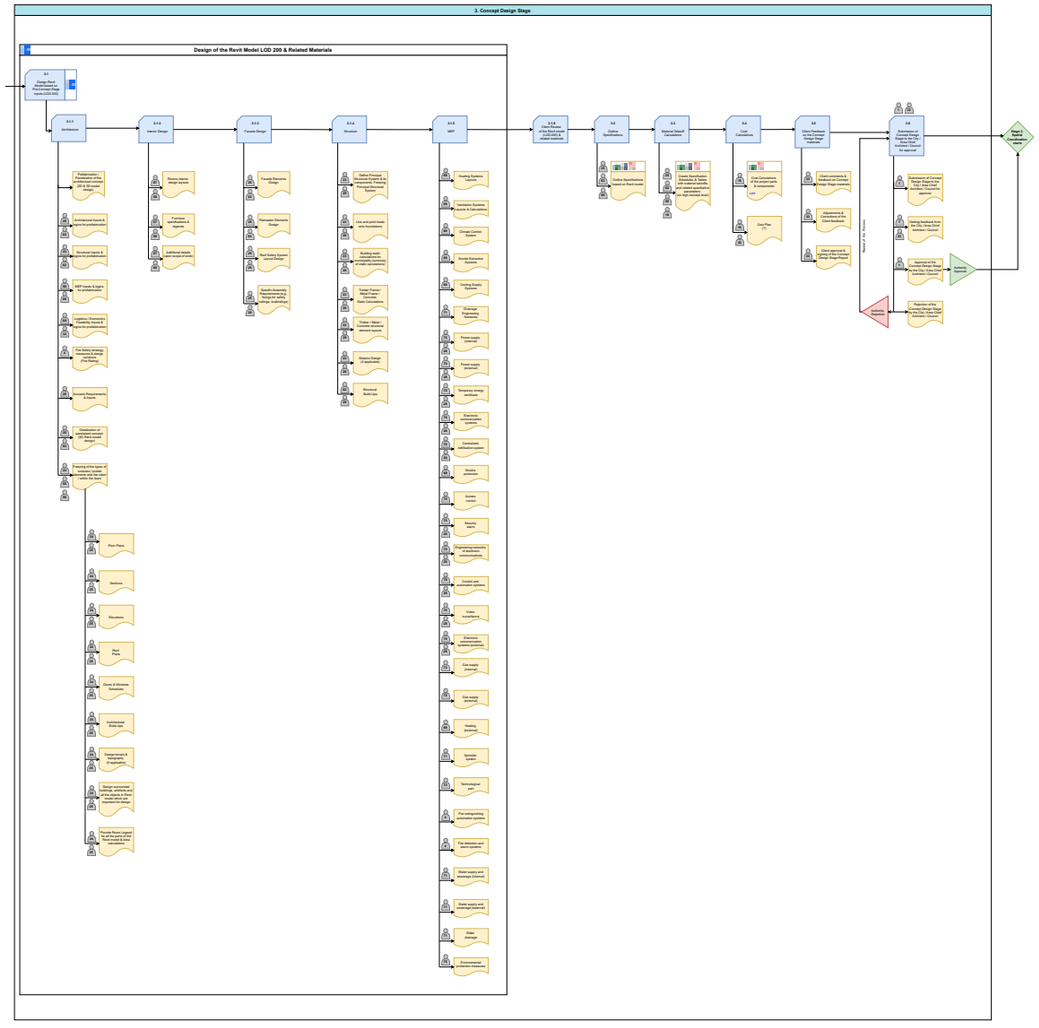
(Images: Moiseenko, I., 2024)

Step 2.
Pre-concept design stage.
Zoom in



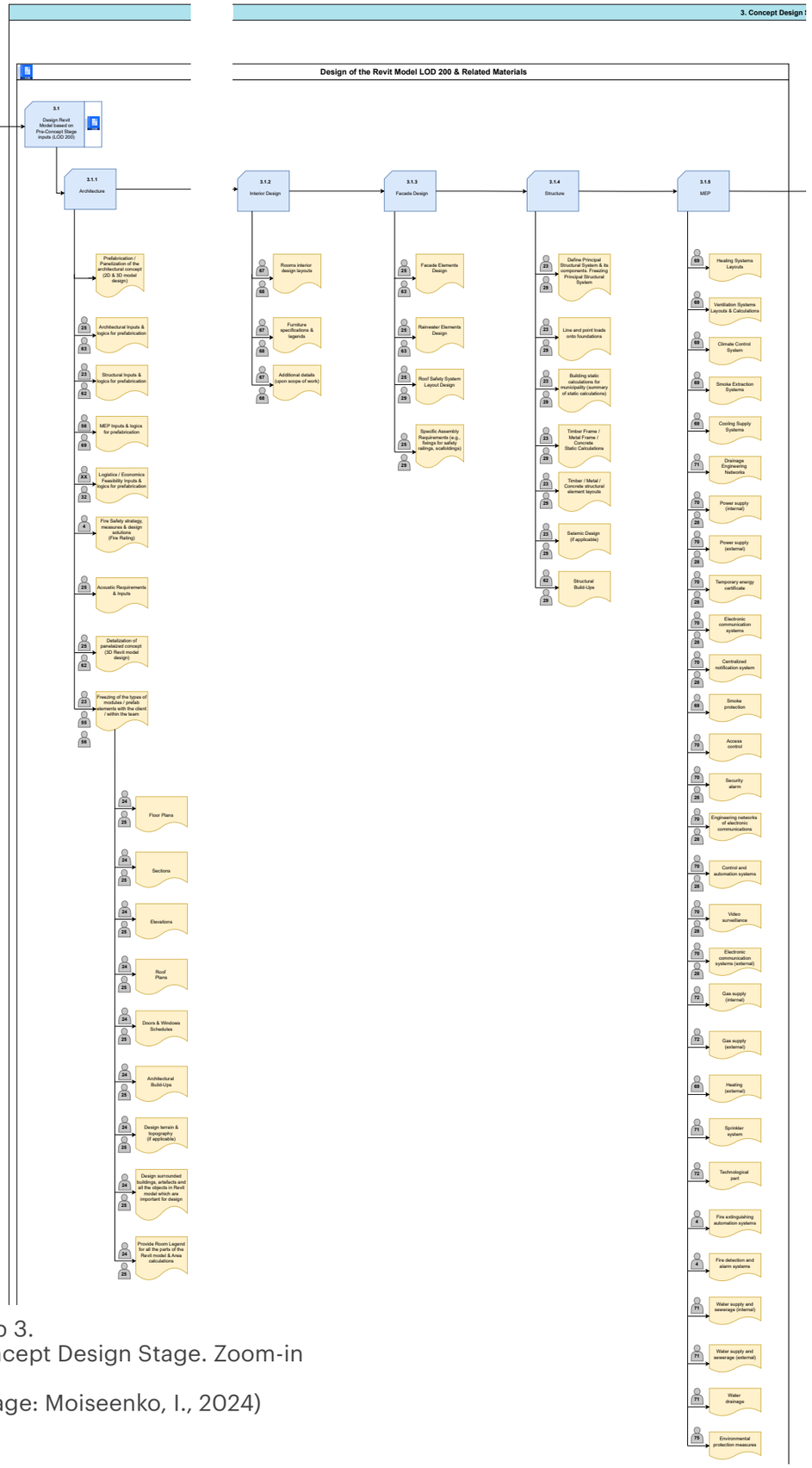
(Images: Moiseenko, I., 2024)

Step 2.
Pre-concept design stage.
Zoom in



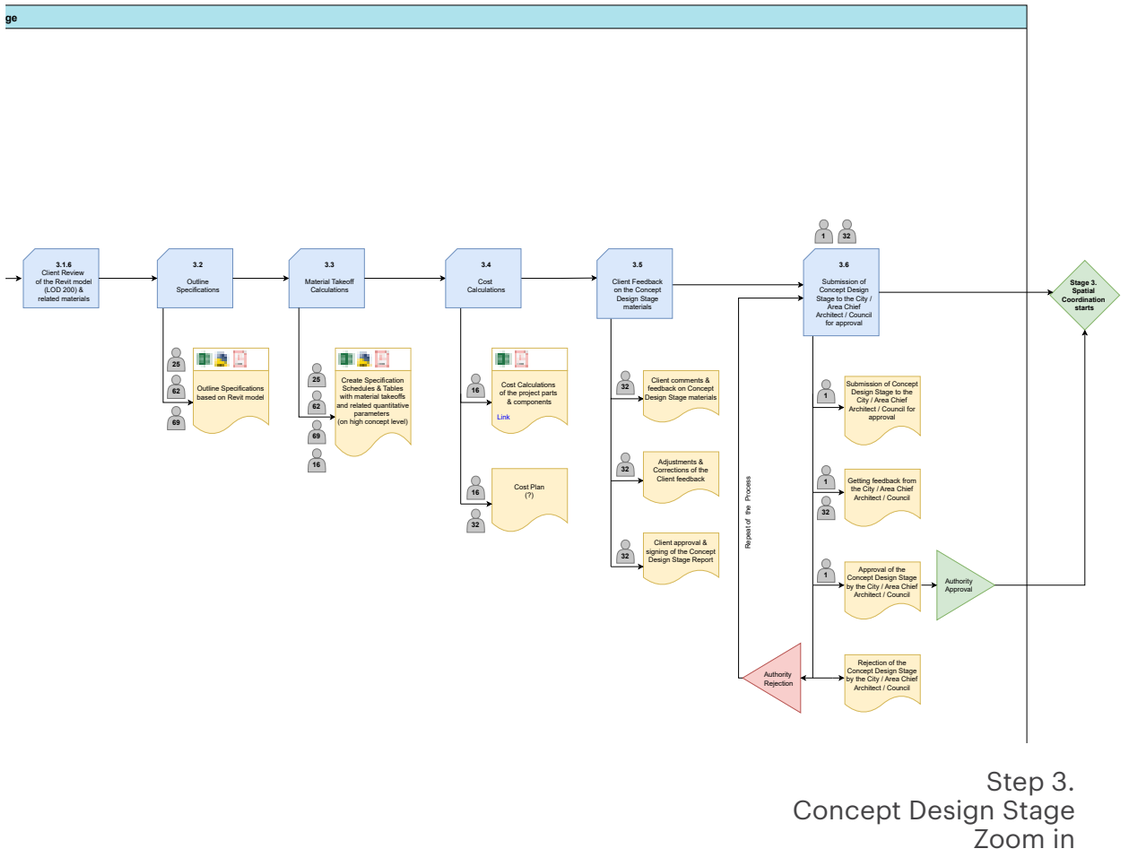
Step 3.
Concept Design Stage

(Image: Moiseenko, I., 2024)



Step 3.
Concept Design Stage. Zoom-in

(Image: Moiseenko, I., 2024)

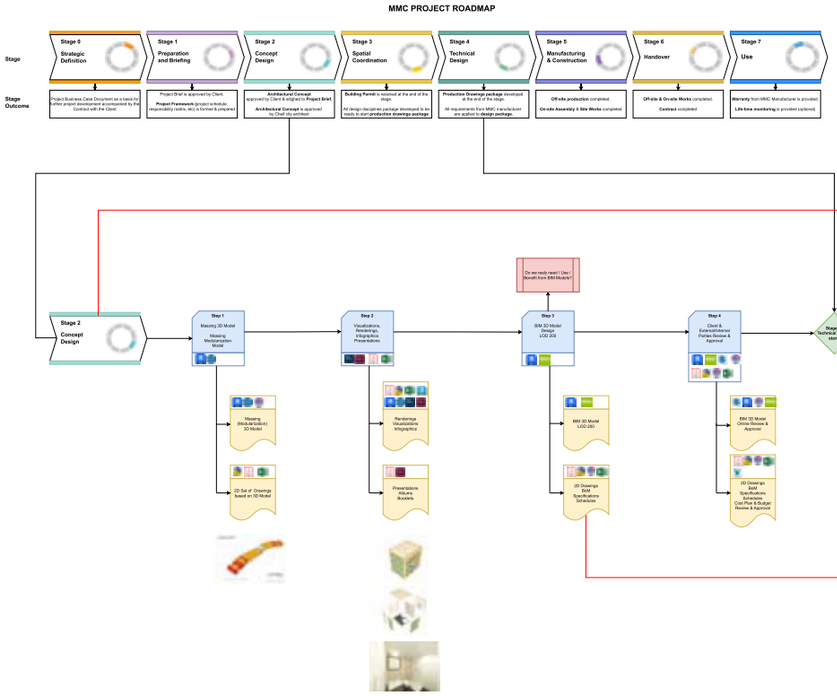


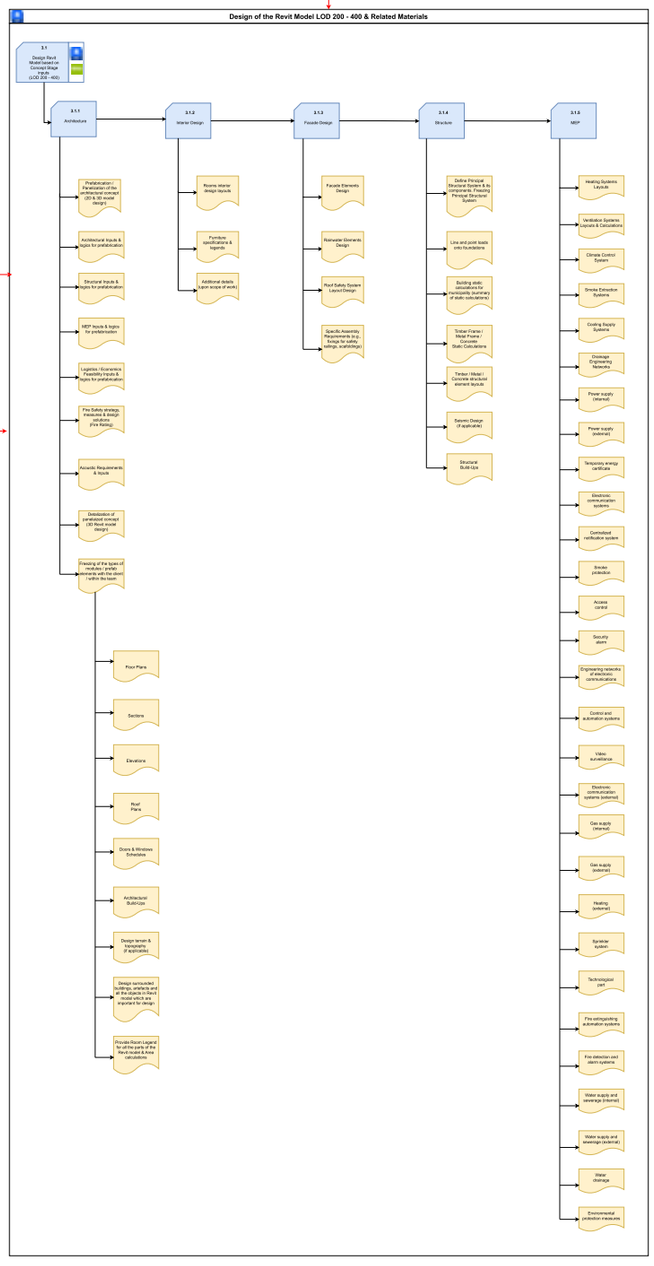
Step 3.
Concept Design Stage
Zoom in

(Image: Moiseenko, I., 2024)

Stage 2. Concept Design. MMC Design Process Map Workflow







Questions to Discuss:

Text

1. Does SEMA real BIM environment?

2. What kind of automation SEMA provides?

3. Does SEMA have analogue of BIM 360?

4. Is SEMA good enough for conceptual modeling & concept design?

5. Is SEMA good enough for producing of 2D drawings?

6. Does SEMA Machine-reading format?

7. Do we need machine-reading format in mid-long term future?

8. How good IFC export format from SEMA?
What are the problems here?

9. Does SEMA have PDM (Product Data Management) System,
like Autodesk Vault for storage of all the files, drawings, revisions & tracking
of the changes & iterations in the project?

10. Does SEMA have Associated Links with other software
for continuous workflow?

11. Can Inventor substitute Robot Structural for structural calculations & analysis?
No

Cost of Proposed Software:

1. Autodesk Revit: 2.910 $ / Year / 1 User
2. Autodesk Inventor: 2.500 $ / Year / 1 User
3. SketchUP: 349 $ / Year / 1 User
4. SEMA: 7.000 $ / Year / 10 Users
5. Autodesk Vault (PDM): 840 $ / Year / 1 User
6. ZWCAD: 1500 $ / Year / 1 User (LITE?)
7. Adobe Photoshop: 263 $ / Year / 1 User
8. Adobe InDesign: 263 $ / Year / 1 User

8.700 $ / Year / 1 User without SEMA

9. 3DS MAX + V-RAY Rendering: 1.945 $ + 325 $ / Year / 1 User
(we can outsource renderings as they are rare tasks for us)

Autodesk Robot Structural Analysis (structural calculations): available only as part of AEC Collection.
Autodesk AEC collection includes: AutoCAD, Revit, Autodesk Forma (AI powered tool for pre-concept design), 3DS MAX, NavisWorks, ReCAP Pro (laser scanning 3D models), Autodesk Cloud Rendering Link
3.560 $ / Year / 1 User or 10.675 $ per 3 Years / 1 User.
Do we need it?

Autodesk Inventor can:

1. Fully integrate Revit files and update them in/from Revit by Associated Links

2. Automated & detailed shop drawings LOD 300 / 400 / 500

3. HSM CAD module for machine-reading formats (CNC machines, 3D printing, KUKA, etc)

4. Production-focused software

5. Automated unfoldings of the elements, automated BoM, weights, specifications based on 3D model

6. AnyCAD technology to work with all the CAD formats regardless of the software

7. Good integration with Autodesk Robot Structural Analysis for structural calculations & simulations

Useful Links:

1. Autodesk Inventor + Revit Interoperability Link

2. Autodesk Vault PDM overview Link

3. Different framing plugins for Revit Link

Build.Works can:

1. Produce BOM from uploaded Revit / SEMA model into Build.Works with an opportunity to adjust the view of BOM in Build.Works

2. Schedules: yes

3. Procurement & purchases: yes

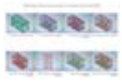
4. Task manager: yes (maybe)



Autodesk Inventor 3D model overview

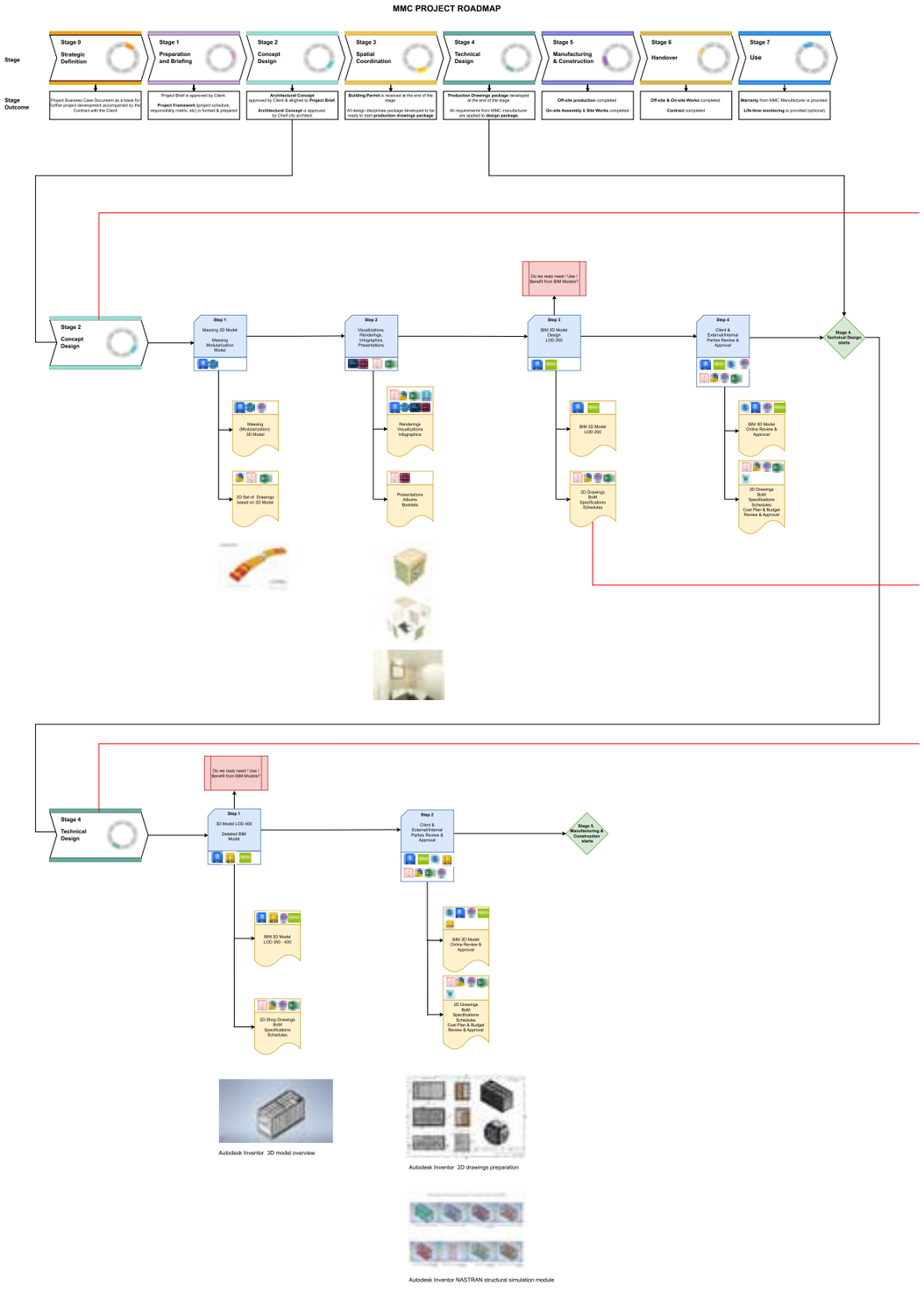


Autodesk Inventor 2D drawings preparation



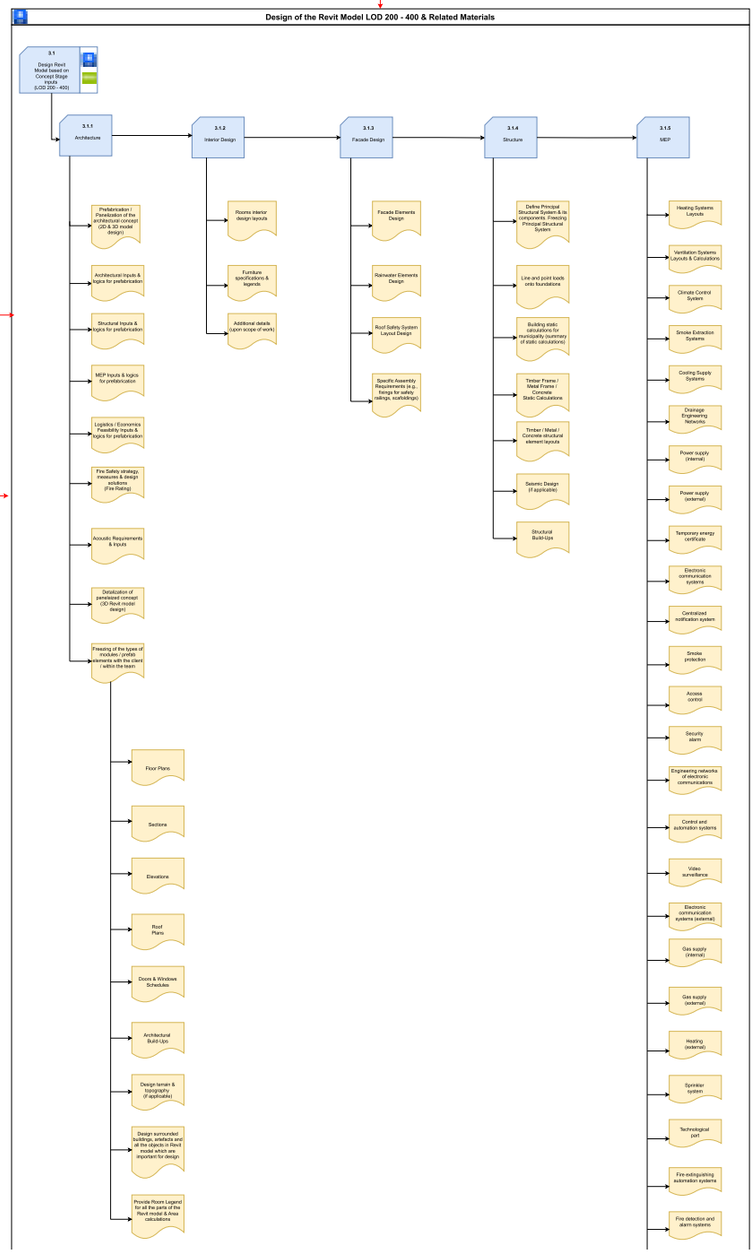
Autodesk Inventor NASTRAN structural simulation module

(Image: Moiseenko, I., 2025)



Design stages, steps required to be done and software to be used on each step

(Image: Moiseenko, I., 2025)



Design materials need to be prepared & submitted as the result of each design stage

Stage 3.
Spatial Coordination



LOD 300

Back to content

STAGE 3. SPATIAL COORDINATION

			Responsibility Matrix			Templates & Documents						
##	Activity / Process / Task	Go / No Go Choice (Milestone)	NHE Member / Department responsible to initiate the Process	NHE Member / Department responsible to complete the Process	NHE Member / Department responsible to approve & finalize the Process	Data / Documents need to be submitted as a result of the Task / Process	Presence of Template / Document need to be submitted	Who is responsable to prepare the document	Who is responsable to fill in the document	Level of Detail (LOD)	Level of Information (LOI)	Approximate Duration of the Process, Days
3	**Spatial Coordination Stage**											
3.1.	**Design Revit Model based on Concept Stage 2 Inputs (LOD 300)**											
3.1.1.	**Architecture**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Prefabrication / Panelization of the architectural concept (2D & 3D model design)											
	Detalization of panelaized / prefabricated concept design (3D Revit model design)											
	Fire Safety strategy, measures & design solutions											
	Acoustics measures & design solutions											
	Floor Plans											
	Sections											
	Elevations											
	Roof Plans											
	Doors & Windows Schedules											
	Architectural Build-Ups											
	Architectural Outline Specifications											
	Architectural Material Takeoffs											
	Provide Room Legend for all the parts of the Revit model & Area calculations											
3.1.2.	**Interior Design**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Rooms interior design layouts											
	Furniture specifications & legends											
	Interior Outline Specifications & Procurement											
	Interior Material Takeoffs											
	Additional details (upon scope of work)											
3.1.3.	**Facade Design**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Facade Elements Design											
	Rainwater Elements Design											
	Roof Safety System Layout Design											
	Specific Assembly Requirements (e.g., fixings for safety railings, scafoldings)											
3.1.4.	**Structure**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Spatial Coordination & development of Structural System & its components with all related disciplines											
	Line and point loads onto foundations											
	Building static calculations for municipality (summary of static calculations)											
	Timber Frame / Metal Frame / Concrete Static Calculations											
	Timber / Metal / Concrete structural element layouts											
	Seismic Design (if applicable)											
	Structural Build-Ups											
	Structural Outline Specifications											
	Structural Material Takeoffs											
	U-Values Calculations											
3.1.5.	**MEP**		Project Manager	Architecture Team	Project Manager, COO, Client							
AVK-A	Heating Systems Layouts											
AVK-V	Ventilation Systems Layouts & Calculations											
AVK-K	Climate Control System											
DN	Smoke Extraction Systems											
AAT	Cooling Supply Systems											
DT	Drainage Engineering Networks											
EL	Power supply (internal)											
ELT	Power supply (external)											
ES-P	Temporary energy certificate											
ESS	Electronic communication systems											
ESS- CI	Centralized notification system											
ESS-DA	Smoke protection											
ESS- PK	Access control											
ESS-AS	Security alarm											
ESS-TK	Engineering networks of electronic communications											
ESS-VAS	Control and automation systems											
ESS-VN	Video surveillance											
EST	Electronic communication systems (external)											
GA	Gas supply (internal)											
GAT	Gas supply (external)											
SAT	Heating (external)											
SP	Sprinkler system											
TN	Technological part											
UAS	Fire extinguishing automation systems											
UATS	Fire detection and alarm systems											
UK	Water supply and sewerage (internal)											
UKT	Water supply and sewerage (external)											
UN	Water drainage											
VAP	Environmental protection measures											
3.1.6.	**Client Review of the Revit model (LOD 300) & related materials**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team							
3.2.	**Outline Specifications**											
3.2.1.	Outline Specifications based on Revit model											
3.3.	**Material Takeoff Calculations**											
3.3.1.	Create Specification Schedules & Tables with material takeoffs and related quantitative parameters		Design Team	Design Team	Design Team							
3.4.	**Cost Calculations**											
3.4.1.	Cost Calculations of the project parts & components		Project Manager	Estimator	Project Manager	Cost Calculator Tool						
3.4.2.	Cost Plan (?)											
3.5.	**Client Feedback on the Spatial Coordination Stage materials**		Project Manager	Project Manager	CEO / COO							
3.5.1.	Client comments & feedback on Concept Design Stage materials	Yes / No	Client Team	Client Team	Client Team	Client Feedback Registration Document						
3.5.2.	Adjustments & Corrections of the Client feedback	Yes / No	Design Team	Design Team	Design Team							
3.5.3.	Client approval & signing of the Spatial Coordination Stage Report	Yes / No	Client Team	Client Team	Client Team	Stage Report for Signed Off						
3.6.	**Submission of Spatial Coordination Stage to the Local Authorities to get Building Permit**	Yes / No										
3.6.1.	Submission of Spatial Coordination Stage to the Local Authorities to get Building Permit	Yes / No	Client Team	Client Team	Client Team							
3.6.2.	Getting feedback from the Local Authorities	Yes / No	Local Authorities	Local Authorities	Local Authorities							
3.6.3.	Approval of the Building Permit by the Local Authorities	Yes / No	Local Authorities	Local Authorities	Local Authorities							

Stage 3. Spatial Coordination
Table view.

(Images: Moiseenko, I., 2025)

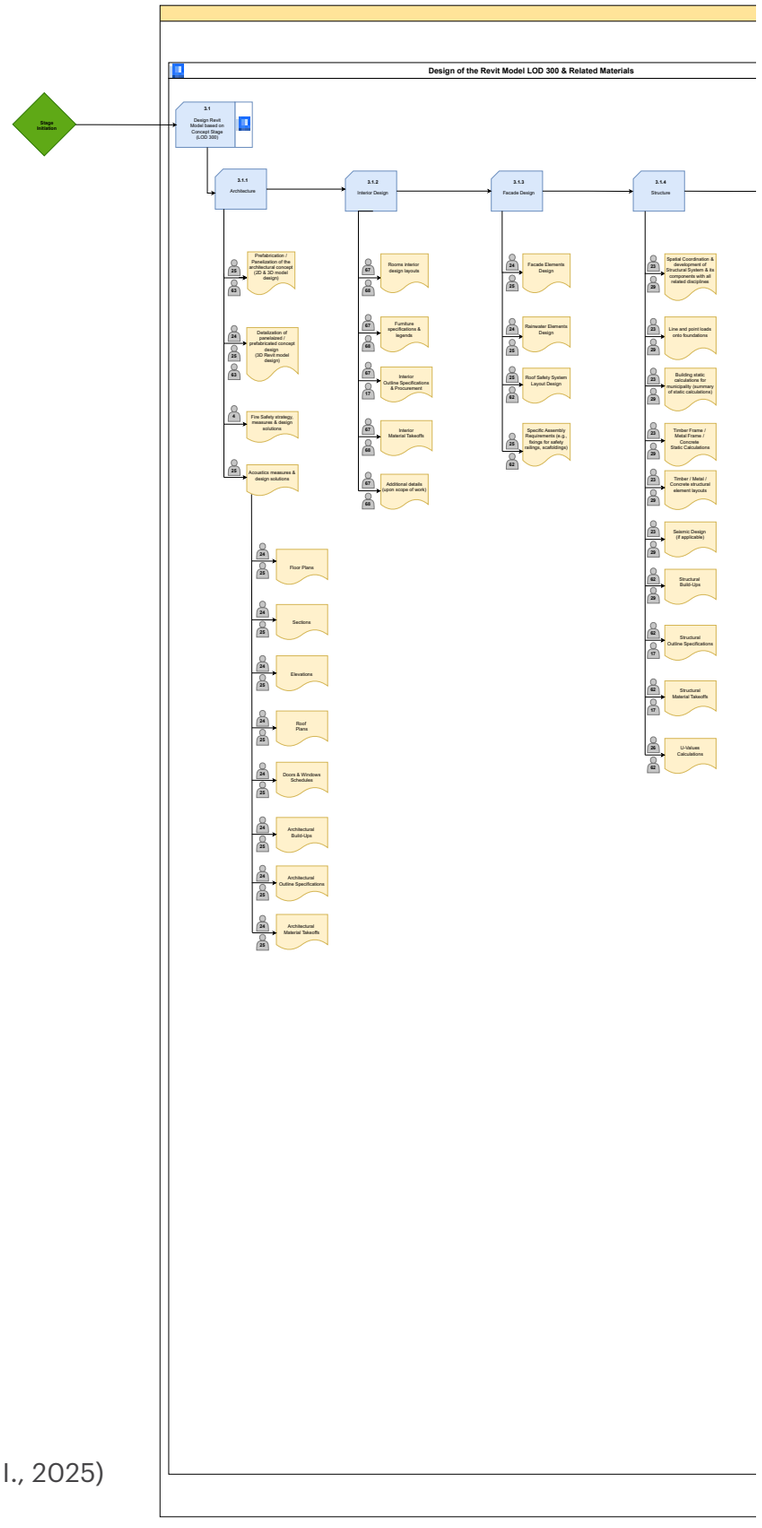
STAGE 3. SPATIAL COORDINATION

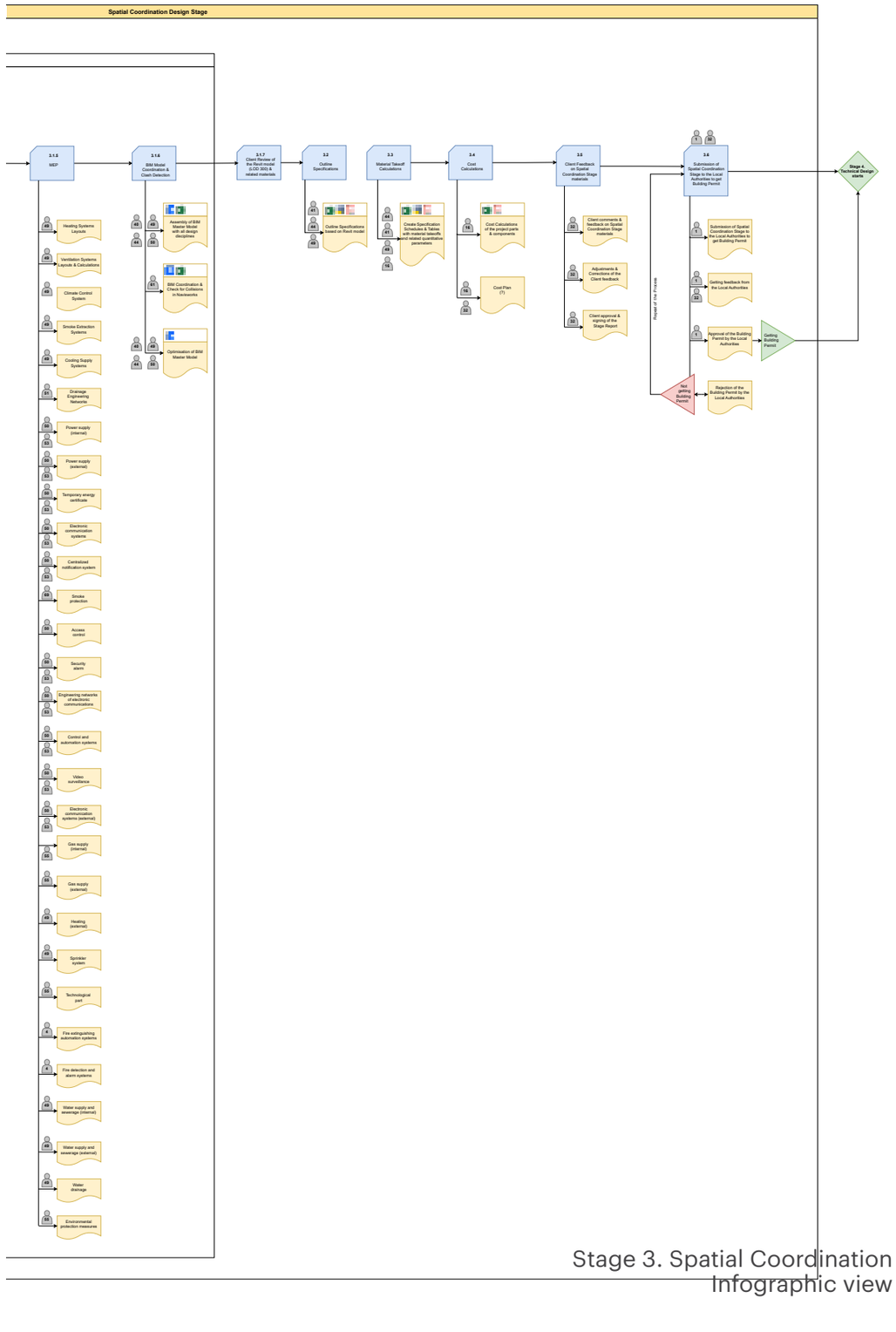
			Responsibility Matrix			
##	Activity / Process / Task	Go / No Go Choice (Milestone)	NHE Member / Department responsible to initiate the Process	NHE Member / Department responsible to complete the Process	NHE Member / Department responsible to approve & finalize the Process	Data / Documents need to be submitted as a result of the Task / Process
3	**Spatial Coordination Stage**					
3.1.	**Design Revit Model based on Concept Stage 2 Inputs (LOD 300)**					
3.1.1.	**Architecture**		Project Manager	Architecture Team	Project Manager, COO, Client	
	Prefabrication / Panelization of the architectural concept (2D & 3D model design)					
	Detalization of panelaized / prefabricated concept design (3D Revit model design)					
	Fire Safety strategy, measures & design solutions					
	Acoustics measures & design solutions					
	Floor Plans					
	Sections					
	Elevations					
	Roof Plans					
	Doors & Windows Schedules					
	Architectural Build-Ups					
	Architectural Outline Specifications					
	Architectural Material Takeoffs					
	Provide Room Legend for all the parts of the Revit model & Area calculations					
3.1.2.	**Interior Design**		Project Manager	Architecture Team	Project Manager, COO, Client	
	Rooms interior design layouts					
	Furniture specifications & legends					
	Interior Outline Specifications & Procurement					
	Interior Material Takeoffs					
	Additional details (upon scope of work)					
3.1.3.	**Facade Design**		Project Manager	Architecture Team	Project Manager, COO, Client	
	Facade Elements Design					
	Rainwater Elements Design					
	Roof Safety System Layout Design					
	Specific Assembly Requirements (e.g., fixings for safety railings, scafoldings)					
3.1.4.	**Structure**		Project Manager	Architecture Team	Project Manager, COO, Client	
	Spatial Coordination & development of Structural System & its components with all related disciplines					
	Line and point loads onto foundations					
	Building static calculations for municipality (summary of static calculations)					
	Timber Frame / Metal Frame / Concrete Static Calculations					
	Timber / Metal / Concrete structural element layouts					
	Seismic Design (if applicable)					
	Structural Build-Ups					
	Structural Outline Specifications					
	Structural Material Takeoffs					
	U-Values Calculations					
3.1.5.	**MEP**		Project Manager	Architecture Team	Project Manager, COO, Client	
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UATS	Fire detection and alarm systems					
UK	Water supply and sewerage (internal)					
UKT	Water supply and sewerage (external)					
UN	Water drainage					
VAP	Environmental protection measures					
3.1.6.	**Client Review of the Revit model (LOD 300) & related materials**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team	
3.2.	**Outline Specifications**					
3.2.1.	Outline Specifications based on Revit model					
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3.5.2.	Adjustments & Corrections of the Client feedback	Yes / No	Design Team	Design Team	Design Team	
3.5.3.	Client approval & signing of the Spatial Coordination Stage Report	Yes / No	Client Team	Client Team	Client Team	Stage Report for Signed Off
3.6.	**Submission of Spatial Coordination Stage to the Local Authorities to get Building Permit**	Yes / No				
3.6.1.	Submission of Spatial Coordination Stage to the Local Authorities to get Building Permit	Yes / No	Client Team	Client Team	Client Team	
3.6.2.	Getting feedback from the Local Authorities	Yes / No	Local Authorities	Local Authorities	Local Authorities	
3.6.3.	Approval of the Building Permit by the Local Authorities	Yes / No	Local Authorities	Local Authorities	Local Authorities	

Stage 3. Spatial Coordination
Table view. Zoom in.

STAGE 3. SPATIAL COORDINATION. (LOD 300)

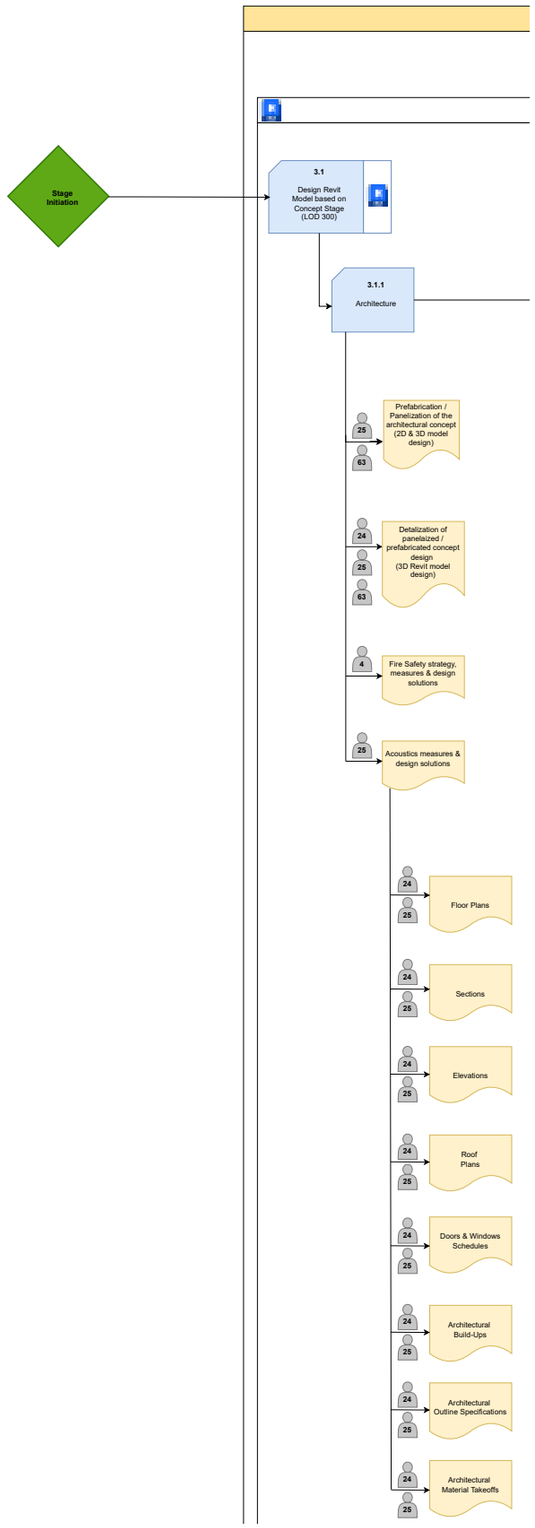






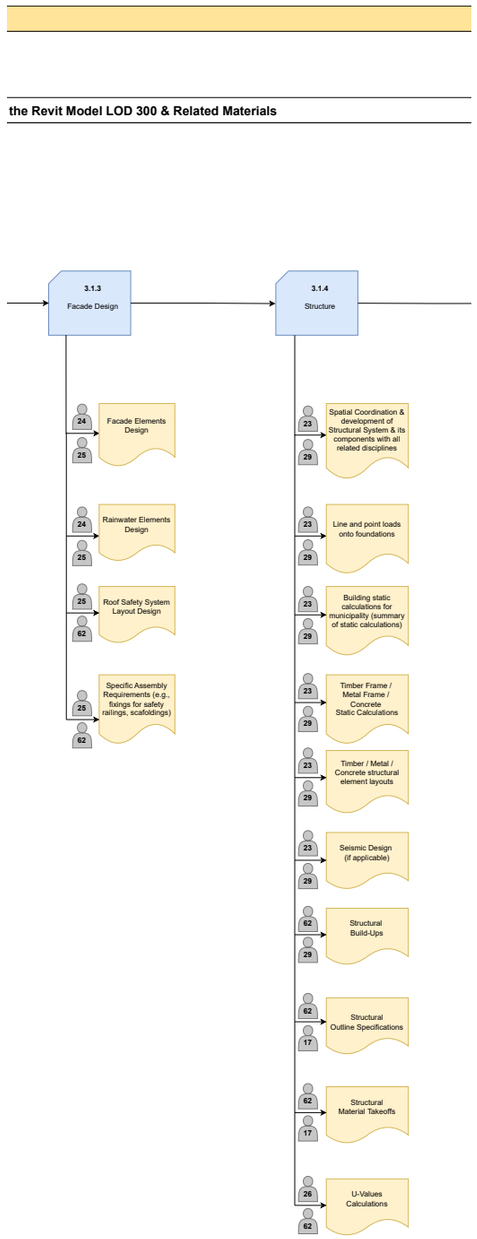
(Images: Moiseenko, I., 2025)

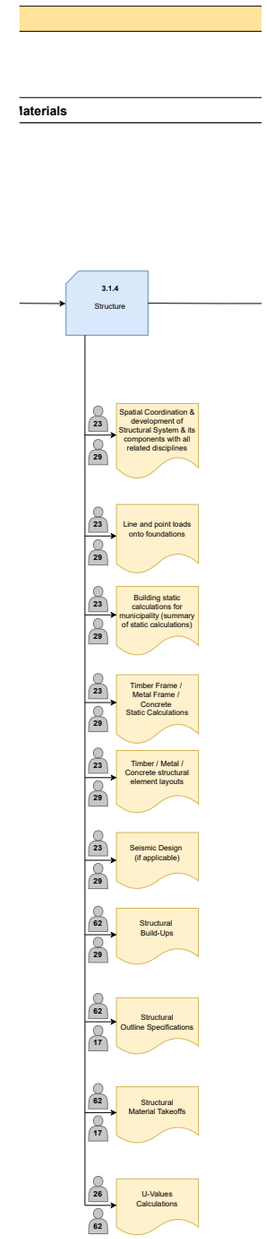
Stage 3. Spatial Coordination
Infographic view



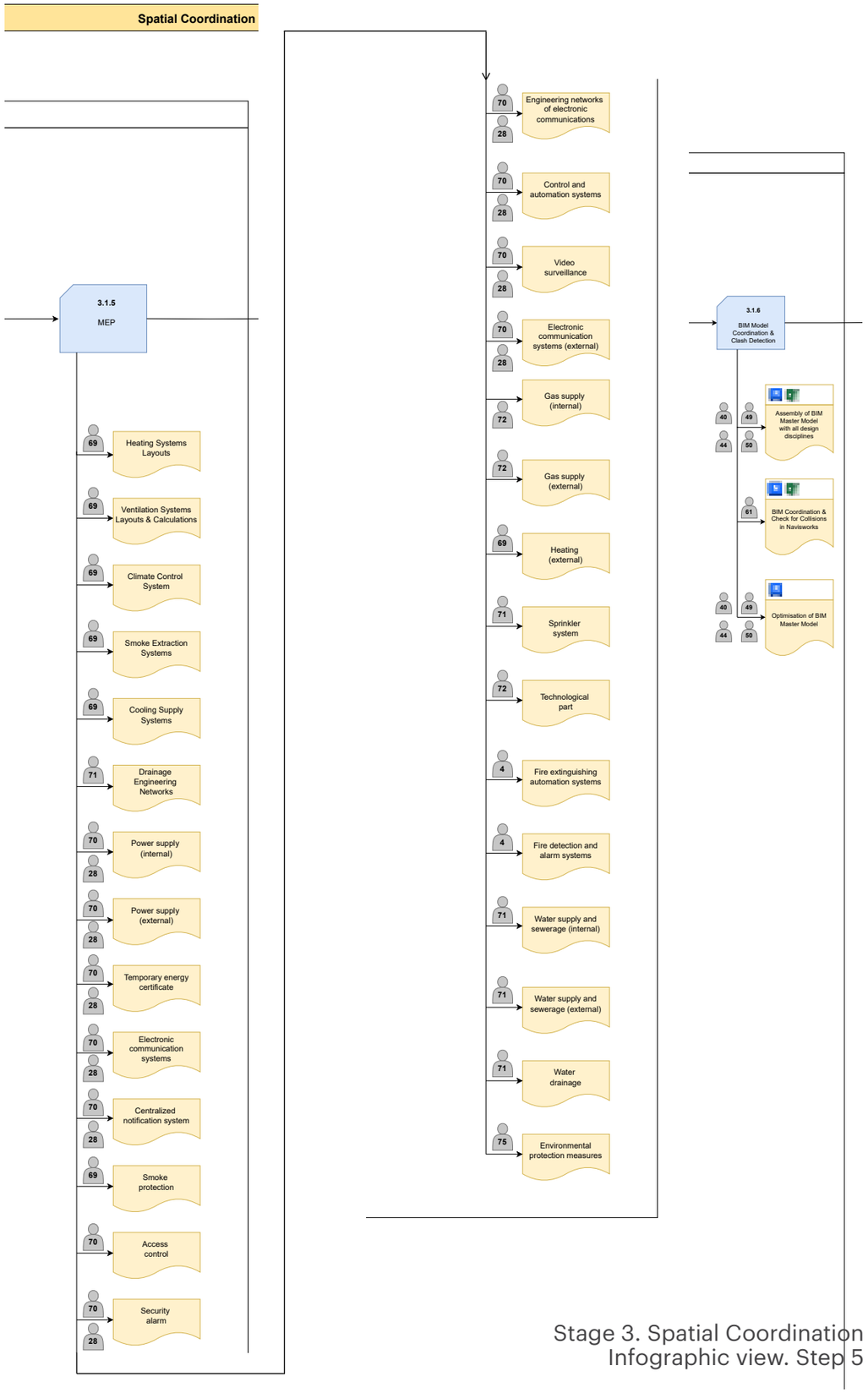
(Images: Moiseenko, I., 2025)

Stage 3. Spatial Coordination
Infographic view. Steps 1 & 2

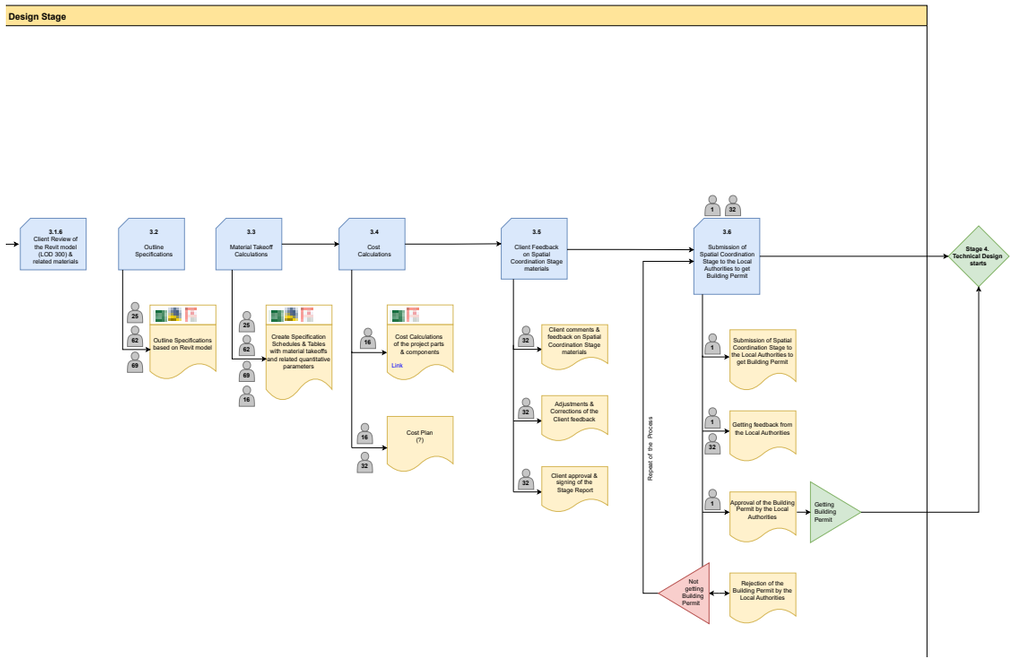




Stage 3. Spatial Coordination
Infographic view. Steps 3 & 4



Stage 3. Spatial Coordination
Infographic view. Step 5



Stage 3. Spatial Coordination
Infographic view. Steps 6 - 12

(Images: Moiseenko, I., 2025)

Stage 4. Technical Design



LOD 400

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STAGE 4. TECHNICAL DESIGN

			Responsibility Matrix			Templates & Documents						
##	Activity / Process / Task	Go / No Go Choice (Milestone)	NHE Member / Department responsible to initiate the Process	NHE Member / Department responsible to complete the Process	NHE Member / Department responsible to approve & finalize the Process	Data / Documents need to be submitted as a result of the Task / Process	Presence of Template / Document need to be submitted	Who is responsable to prepare the document	Who is responsable to fill in the document	Level of Detail (LOD)	Level of Information (LOI)	Approximate Duration of the Process, Days
3	**Technical Design Stage LOD 400**											
3.1.	**Design Revit Model based on Spatial Coordination Stage 3 Inputs (LOD 400)**											
3.1.1.	**Architecture**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Production Drawings of the Panelized / Prefabricated design (2D & 3D model design)											
	Detalization of panelaized / prefabricated concept design (3D Revit model design)											
	Fire Safety strategy, measures & design solutions											
	Acoustics measures & design solutions											
	Site Assembly Documentation											
	Floor Plans											
	Sections											
	Elevations											
	Roof Plans											
	Doors & Windows Schedules											
	Architectural Build-Ups											
	Architectural Outline Specifications											
	Architectural Material Takeoffs											
	Provide Room Legend for all the parts of the Revit model & Area calculations											
3.1.2.	**Interior Design**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Rooms interior design layouts											
	Furniture specifications & legends											
	Interior Outline Specifications & Procurement											
	Interior Material Takeoffs											
	Site Assembly Documentation											
	Additional details (upon scope of work)											
3.1.3.	**Facade Design**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Facade Elements Design											
	Rainwater Elements Design											
	Roof Safety System Layout Design											
	Specific Assembly Requirements (e.g., fixings for safety railings, scafoldings)											
3.1.4.	**Structure**		Project Manager	Architecture Team	Project Manager, COO, Client							
	Production Drawings of Structural System & its components ready for Manufacturing Stage											
	Line and point loads onto foundations											
	Building static calculations for municipality (summary of static calculations)											
	Timber Frame / Metal Frame / Concrete Static Calculations											
	Timber / Metal / Concrete structural element layouts											
	Seismic Design (if applicable)											
	Structural Build-Ups											
	Structural Outline Specifications											
	Structural Material Takeoffs											
	U-Values Calculations											
	Site Assembly Documentation											
3.1.5.	**MEP**		Project Manager	Architecture Team	Project Manager, COO, Client							
AVK-A	Heating Systems Layouts											
AVK-V	Ventilation Systems Layouts & Calculations											
AVK-K	Climate Control System											
DN	Smoke Extraction Systems											
AAT	Cooling Supply Systems											
DT	Drainage Engineering Networks											
EL	Power supply (internal)											
ELT	Power supply (external)											
ES-P	Temporary energy certificate											
ESS	Electronic communication systems											
ESS- CI	Centralized notification system											
ESS-DA	Smoke protection											
ESS- PK	Access control											
ESS-AS	Security alarm											
ESS-TK	Engineering networks of electronic communications											
ESS-VAS	Control and automation systems											
ESS-VN	Video surveillance											
EST	Electronic communication systems (external)											
GA	Gas supply (internal)											
GAT	Gas supply (external)											
SAT	Heating (external)											
SP	Sprinkler system											
TN	Technological part											
UAS	Fire extinguishing automation systems											
UATS	Fire detection and alarm systems											
UK	Water supply and sewerage (internal)											
UKT	Water supply and sewerage (external)											
UN	Water drainage											
VAP	Environmental protection measures											
	Site Assembly Documentation											
3.1.6.	**Client Review of the Revit model (LOD 400) & related materials**	Yes / No	Project Manager Design Team	Project Manager Design Team	Project Manager Design Team							
3.2.	**Outline Specifications**											
3.2.1.	Outline Specifications based on Revit model											
3.3.	**Material Takeoff Calculations**											
3.3.1.	Create Specification Schedules & Tables with material takeoffs and related quantitative parameters		Design Team	Design Team	Design Team							
3.4.	**Cost Calculations**											
3.4.1.	Cost Calculations of the project parts & components		Project Manager	Estimator	Project Manager	Cost Calculator Tool						
3.4.2.	Cost Plan (?)											
3.5.	**Client Feedback on the Spatial Coordination Stage materials**		Project Manager	Project Manager	CEO / COO							
3.5.1.	Client comments & feedback on Technical Design Stage materials	Yes / No	Client Team	Client Team	Client Team	Client Feedback Registration Document						
3.5.2.	Adjustments & Corrections of the Client feedback	Yes / No	Design Team	Design Team	Design Team							
3.5.3.	Client approval & signing of the Technical Design Stage Report	Yes / No	Client Team	Client Team	Client Team	Stage Report for Signed Off						
3.6.	**Submission of Technical Design Stage package to MMC manufacturer and/or traditional General Contractor**	Yes / No										
3.6.1.	Submission of Technical Design Stage package to MMC manufacturer and/or traditional General Contractor	Yes / No	Client Team	Client Team	Client Team							
3.6.2.	Getting feedback from MMC manufacturer / General Contractor	Yes / No	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor							
3.6.3.	Approval of the Technical Design Stage package by MMC manufacturer / General Contractor	Yes / No	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor							

Stage 4. Technical Design
Table view.

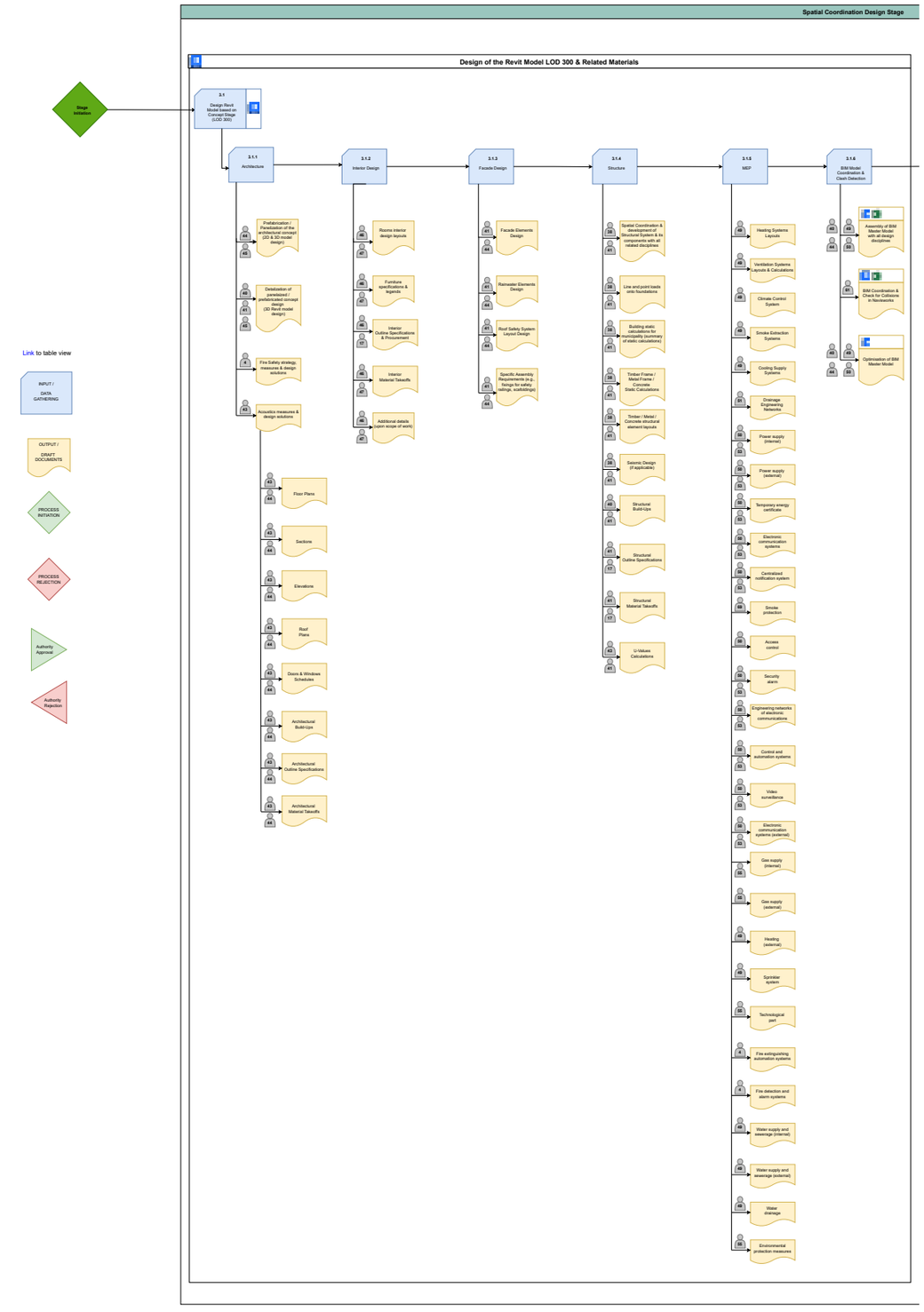
(Images: Moiseenko, I., 2025)

STAGE 4. TECHNICAL DESIGN

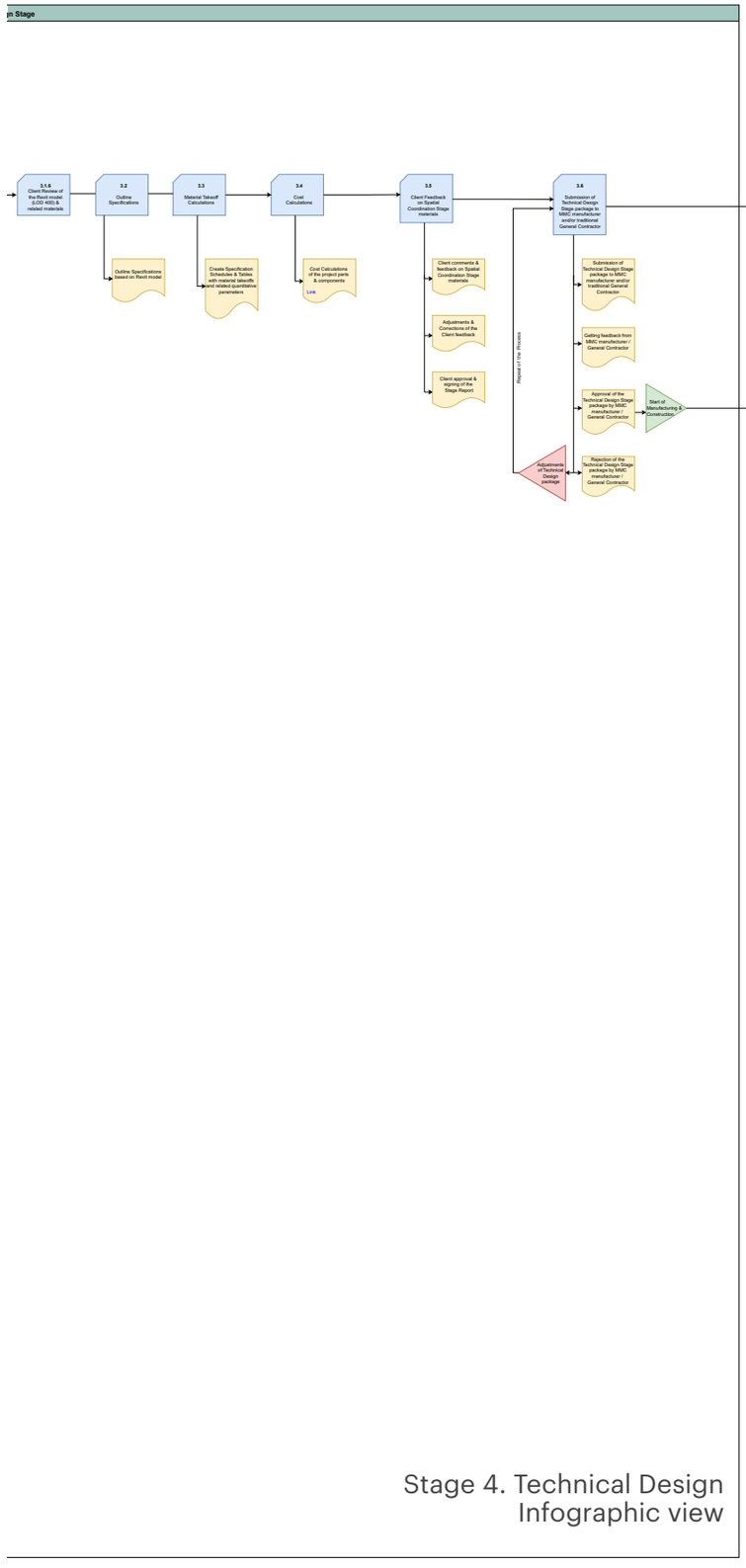
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3.6.3.	Approval of the Technical Design Stage package by MMC manufacturer / General Contractor	Yes / No	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor	MMC Manufacturer / General Contractor		

Stage 4. Technical Design
Table view. Zoom in

STAGE 4. TECHNICAL DESIGN. (LOD 400)

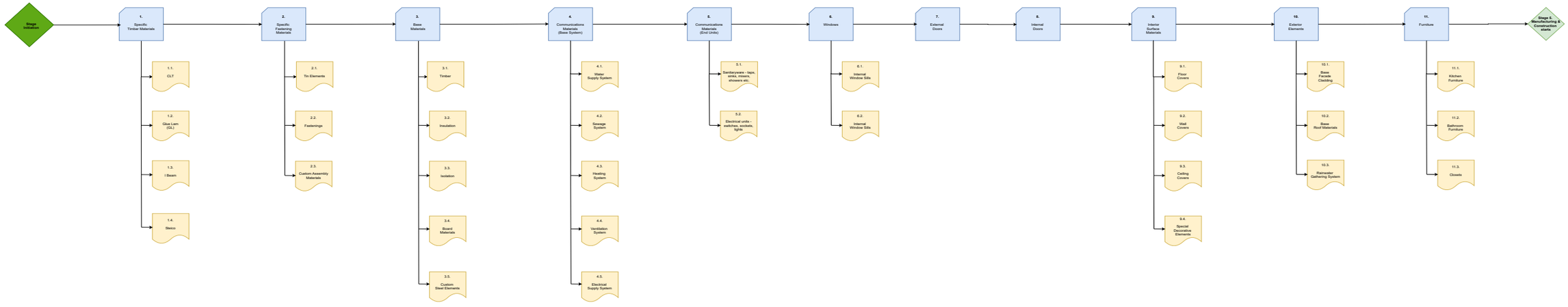


(Images:Moiseenko,I. 2025)



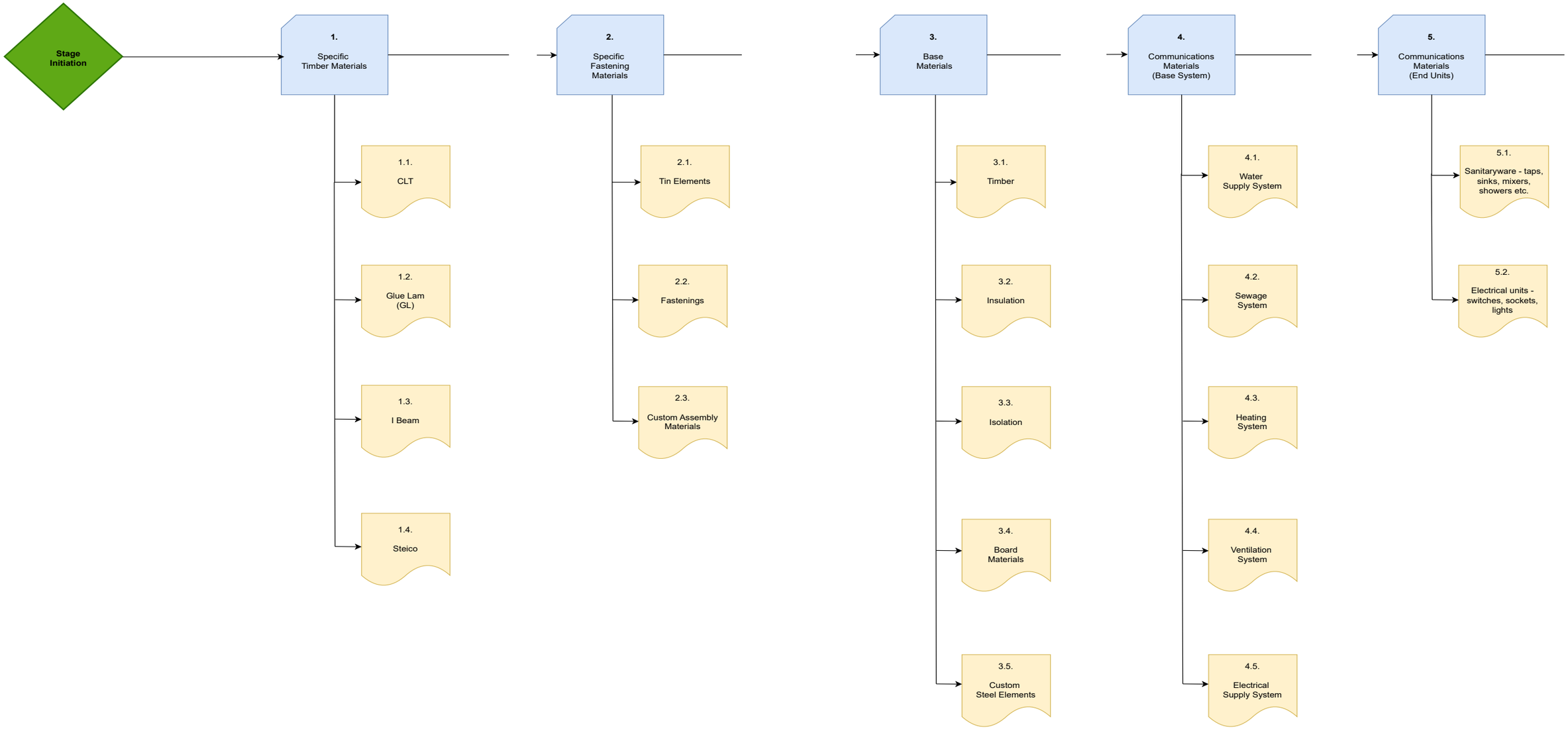
Stage 4. Technical Design
Infographic view

PROCUREMENT PROCESS

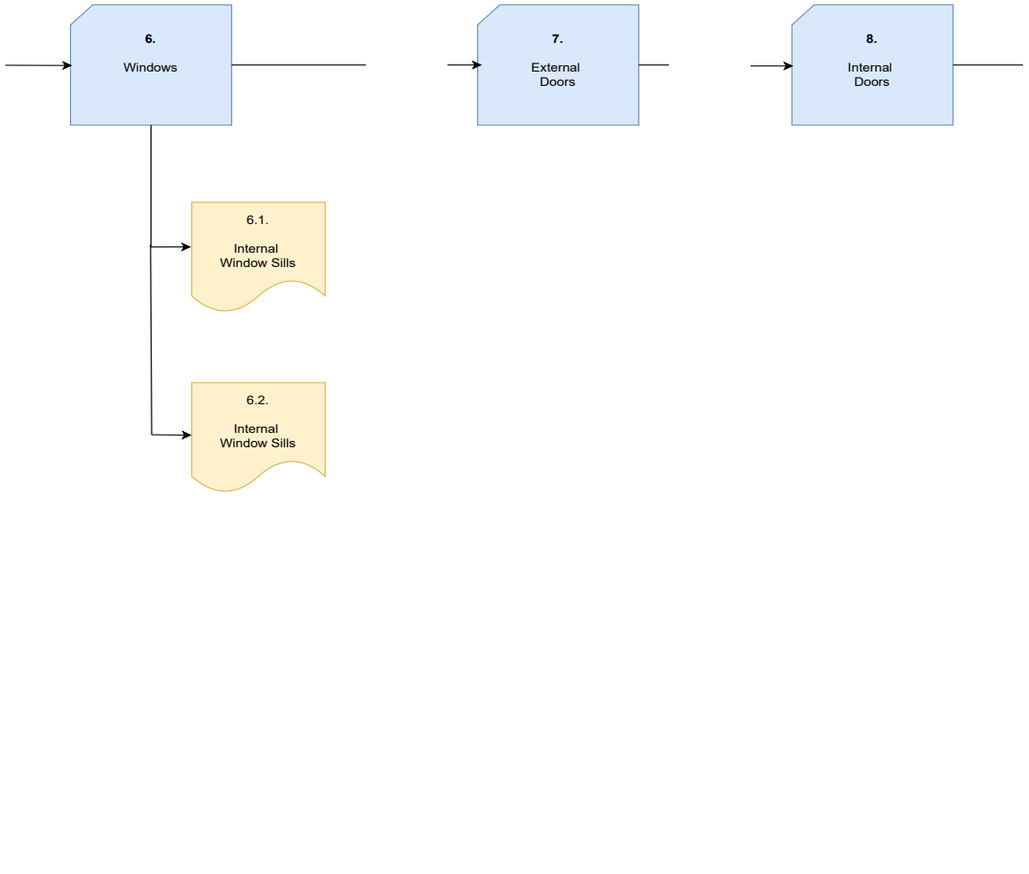


Procurement process infographic view

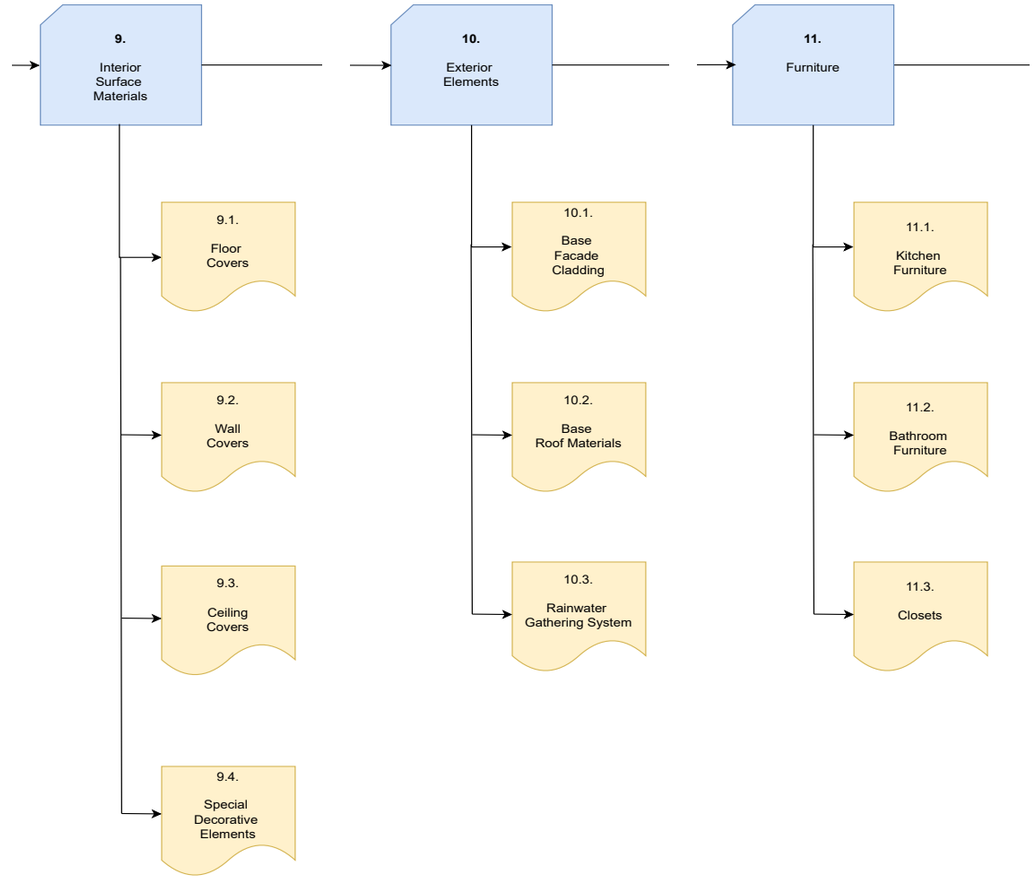
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