Model element authoring schedule – template

This schedule assigns responsibilities to model elements via an author (MEA) and defines Level of Development (LOD) for those model elements across project stages. Find detailed definitions in [Appendix C](https://www.biminnz.co.nz/nz-bim-handbook#v3-appendix-C) Levels of Development.

Model elements ownership can be transferred between participating parties, but should be clearly defined in the table below.

This MEA schedule is a starting point for a standard project and the selection of elements in the schedule. It should reflect individual project requirements   
and be agreed by participating parties.

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| REVISION RECORD |  |  |  |
| REVISION: | DATE: | REVIEWER: | COMMENTS: |
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| MEA DISCIPLINE: | | | LEVEL OF DEVELOPMENT (LOD): | REFER TO NEW ZEALAND BIM HANDBOOK  FOR DEFINITIONS: |
| ARCHITECTURE |  |  | 100 | Conceptual |
| STRUCTURE |  |  | 200 | Approximate geometry |
| HYDRAULIC |  |  | 300 | Design specified system (Precise geometry) |
| OTHER |  |  | 350 | Specific system (precise geometry) + Interfaces |
|  |  |  | 400 | Fabrication and assembly |
|  |  |  | 500 | Field verified |

Project participants are responsible for developing each model element, at the end of each phase of the project, to the Level of Development (LOD) as set out below, with reference to the BIM Forum Level of Development (LOD) specification.

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| Project phase: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| SPATIAL: |  |  |  | |  | |  | |  | | |  | | |  |
| SITE BOUNDARIES, SETBACKS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| GRIDS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| LEVELS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ZONES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SPACES, ROOMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SITE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| TOPOGRAPHY |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| EXCAVATION |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| STORMWATER |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SERVICES (IN GROUND) |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ROADS |  |  |  |  |  |  |  |  |  | |  |  | |  | Transfer design content from ARCH - CIVIL |
| PARKING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PATHS, PAVING, KERBS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WALLS |  |  |  |  |  |  |  |  |  | |  |  | |  | Non-loadbearing |
| FENCING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SOFT LANDSCAPING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |

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| Project phase DELIVERABLE: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| SUBSTRUCTURE: |  |  |  | |  | |  | |  | | |  | | |  |
| FOUNDATIONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| RETAINING WALLS |  |  |  |  |  |  |  |  |  | |  |  | |  | Architect to specify and set out. Structure to provide support. Duplicated elements to be discussed |
| SUBSOIL DRAINAGE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SLAB ON GRADE |  |  |  |  |  |  |  |  |  | |  |  | |  | Architect to specify, set out and allow for rebates and setdowns. Structure to provide support. Structure to monitor architecture and own structural slabs. Duplicated elements to be discussed |
| STRUCTURE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FLOORS - CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  | Slab edge & rebates ownership to be discussed |
| FLOORS - TIMBER |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COLUMNS - CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COLUMNS - TIMBER |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COLUMNS - STEEL (PRIMARY) |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COLUMNS - STEEL (SECONDARY) |  |  |  |  |  |  |  |  |  | |  |  | |  | Support posts |
| COLUMNS - STEEL (TERTIARY) |  |  |  |  |  |  |  |  |  | |  |  | |  | Architectural support steelwork, such as facade support |
| BEAMS - CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FRAMING - TIMBER |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FRAMING - STEEL (PRIMARY) |  |  |  |  |  |  |  |  |  | |  |  | |  | Beams, bracing |
| FRAMING - STEEL (SECONDARY) |  |  |  |  |  |  |  |  |  | |  |  | |  | Support beams, purlins,  girts, architectural support steelwork, such as facade support |
| WALLS - LOAD BEARING |  |  |  |  |  |  |  |  |  | |  |  | |  | Duplicated elements to be discussed |
| WALLS - INSITU CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  | Plinths, upstands/nibs, recesses |
| WALLS - MASONRY |  |  |  |  |  |  |  |  |  | |  |  | |  | Duplicated elements to be discussed |
| WALLS - PRECAST CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PENETRATIONS - SHAFT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PENETRATIONS - WALL |  |  |  |  |  |  |  |  |  | |  |  | |  | Load bearing |
| PENETRATIONS - SERVICES |  |  |  |  |  |  |  |  |  | |  |  | |  | Define the minimum size |
| STAIRS - CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  | Architect to setout & cover compliance |
| STAIRS - STEEL |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| RAMPS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ROOF - CONCRETE |  |  |  |  |  |  |  |  |  | |  |  | |  | Rebates & upstands included |
| NON-STRUCTURAL SEISMIC RESTRAINTS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |

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| Project phase DELIVERABLE: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| ENCLOSURE |  |  |  | |  | |  | |  | | |  | | |  |
| CLADDING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| CURTAIN WALLS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WINDOWS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DOORS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WALL OPENINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ROOFING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ROOF OPENINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| CANOPIES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COLUMN CLADDINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ACCESS & MAINTENANCE |  |  |  |  |  |  |  |  |  | |  |  | |  | Consider safety in design  and maintenance purposes elements |
| INTERIOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FLOORING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WALLS - INTERTENANCY |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WALLS - PARTITIONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| WALLS - FINISHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DOORS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| INTERNAL OPENINGS |  |  |  |  |  |  |  |  |  | |  |  | |  | Non structural |
| CEILINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| BALUSTRADING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |

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| Project phase DELIVERABLE: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| F, F & E |  |  |  | |  | |  | |  | | |  | | |  |
| CASEWORK, JOINERY |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FIXTURES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FITTINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| EQUIPMENT  (NON-SERVICE) |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FURNITURE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SIGNAGE & WAYFINDING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| MECHANICAL |  |  |  |  |  |  |  |  |  | |  |  | |  | Consider flanges, fixings, seismic movement to other elements |
| AIR TERMINALS |  |  |  |  |  |  |  |  |  | |  |  | |  | Registers, Grilles,  Diffusers etc) |
| MECHANICAL EQUIPMENT – MAJOR |  |  |  |  |  |  |  |  |  | |  |  | |  | Plant rooms |
| MECHANICAL EQUIPMENT – MINOR |  |  |  |  |  |  |  |  |  | |  |  | |  | On Floor |
| MECHANICAL LOUVRES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK - RISERS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK - MAJOR RUNS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK - BRANCHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK EQUIPMENT CONNECTIONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK ACCESSORIES |  |  |  |  |  |  |  |  |  | |  |  | |  | Dampers, collars, fire sleeves etc. |
| DUCTWORK FITTINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| DUCTWORK - FLEXIBLE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE ACCESSORIES – MAJOR VALVES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE FITTINGS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - RISERS |  |  |  |  |  |  |  |  |  | |  |  | |  | Greater than 30mm in diameter only (including Lagging/Insulation) |
| PIPEWORK - MAIN RUNS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - BRANCHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - FINAL CONNECTIONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - FLEXIBLE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ELECTRICAL FOR MECHANICAL |  |  |  |  |  |  |  |  |  | |  |  | |  | MSSB or cable trays |
| MAINTENANCE & ACCESS ZONES AROUND EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SEISMIC RESTRAINTS |  |  |  |  |  |  |  |  |  | |  |  | |  | Ownership to be discussed |

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| Project phase DELIVERABLE: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| HYDRAULIC |  |  |  | |  | |  | |  | | |  | | |  |
| SANITARY FIXTURES |  |  |  |  |  |  |  |  |  | |  |  | |  | Including FWG’s |
| HOT AND COLD WATER SYSTEMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| STORMWATER SYSTEMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SIPHONIC SYSTEMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SANITARY SYSTEMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| VENT SYSTEMS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| HYDRAULIC EQUIPMENT -MAJOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| HYDRAULIC EQUIPMENT - MINOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE ACCESSORIES – MAJOR VALVES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE FITTINGS |  |  |  |  |  |  |  |  |  | |  |  | |  | Bends, Tees etc |
| PIPEWORK - RISERS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - MAIN RUNS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - BRANCHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - FINAL CONNECTIONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| MAINTENANCE & ACCESS ZONES AROUND EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SEISMIC RESTRAINTS |  |  |  |  |  |  |  |  |  | |  |  | |  | Ownership to be discussed |
| FIRE PROTECTION |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SPRINKLER HEADS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FIRE EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  | Pumps/Tanks/etc |
| FIRE ALARM CONTROLS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FIRE PANELS - MAJOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| FIRE PANELS - MINOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - RISES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - MAINS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - BRANCHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPEWORK - FLEXIBLE |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE ACCESSORIES - SPRINKLER VALVE SETS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PIPE ACCESSORIES - VALVES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| Passive Fire Protection |  |  |  |  |  |  |  |  |  | |  |  | |  | Dampers, collars etc |
| MAINTENANCE & ACCESS ZONES AROUND EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SEISMIC RESTRAINTS |  |  |  |  |  |  |  |  |  | |  |  | |  | Ownership to be discussed |

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| Project phase DELIVERABLE: | Concept design | | Preliminary design | | Developed design | | Detailed design | | Construction | | | Operation | | | Notes |
| Model element: | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | MEA | LOD | | MEA | LOD | |  |
| ELECTRICAL/ SECURITY |  |  |  | |  | |  | |  | | |  | | |  |
| ELECTRICAL EQUIPMENT - MAJOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ELECTRICAL EQUIPMENT - MINOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ELECTRICAL FIXTURES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| GPOS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| CABLE TRAYS - RISERS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| CABLE TRAYS - MAJOR RUNS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| CABLE TRAYS - BRANCHES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| LIGHTING - FIXTURES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| LIGHTING - EMERGENCY & EGRESS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| LIGHT CONTROLS |  |  |  |  |  |  |  |  |  | |  |  | |  | Switches |
| DATA OUTLETS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COMMS AND DATA EQUIPMENT - MAJOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| COMMS AND DATA EQUIPMENT - MINOR |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SECURITY DEVICES |  |  |  |  |  |  |  |  |  | |  |  | |  | PIR |
| SECURITY PANELS /EQUIPMENT - PRIMARY |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| Security Panels /Equipment - Secondary |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| MAINTENANCE & ACCESS ZONES AROUND EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SEISMIC RESTRAINTS |  |  |  |  |  |  |  |  |  | |  |  | |  | Ownership to be discussed |
| CONVEYING |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| LIFTS, |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| ESCALATORS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| TRAVELATORS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| MAINTENANCE & ACCESS ZONES AROUND EQUIPMENT |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| SPECIALIST SERVICES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| NURSE CALL DEVICES |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| NURSE CALL PANELS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| MEDICAL GAS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |
| PANIC BUTTONS |  |  |  |  |  |  |  |  |  | |  |  | |  |  |

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| Reference documents and standards  The following documents are listed for reference. | | |
| GENERIC TITLE: | APPLICABLE REFERENCE DOCUMENT/NOTES: | VERSION: |
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The New Zealand BIM handbook

This document is one of a suite of documents forming the New Zealand BIM handbook.   
You can download or view the remaining documents here:

[**http://www.biminnz.co.nz/nz-bim-handbook**](http://www.biminnz.co.nz/nz-bim-handbook)