NATIONAL RESEARCH COUNCIL CANADA

ENCAPSULATED MASS TIMBER CONSTRUCTION - COST COMPARISON CANADA

CONSTRUCTION, TIME, & MAINTENANCE COST-BENEFIT REPORT

September 22, 2017

Hanscomb

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September 22, 2017
PROJECT NUMBER: V2778

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- Steel Structure

1. INTRODUCTION

1.1 Purpose:

This report is intended to provide a realistic allocation of direct and indirect construction costs, time to build, and annual building maintenance costs for the National Research Council Canada, Encapsulated Mass Timber Construction - Cost Comparison, located in Canada, with exceptions of items listed in 1.5 below.

1.2 Project:

The Task Group on Combustible Construction (TG) is in the process of evaluating a proposed code change request (CCR) related to buildings of encapsulated mass timber construction (EMTC). As part of the analysis of the code change request, an impact analysis is required that includes a cost-benefit analysis.

Hanscomb was hired to provide a cost-benefit analysis and to compare the estimated value of the following:

1. The cost of constructing a building of mass timber (unprotected) versus a building constructed of encapsulated mass timber (e.g. mass timber protected with a double layer of Type X gypsum board) versus a traditional concrete and steel building.

2. The time to build a building of mass timber construction (unprotected) versus a building of encapsulated mass timber construction versus a traditional concrete and steel building.

3. The annual maintenance costs of building of mass timber construction versus a building of encapsulated mass timber construction versus a traditional concrete and steel building.

For the purposes of this study two sets of conceptual floor plans and elevations have been created:

1. A 12 storey building with a Group C major occupancy (residential) where each storey is 6,000 m2 in floor area.

2. A 12 storey building with a Group D major occupancy (office) where each storey is 7,200 m2 in floor area.

1.3 Methodology:

From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a construction management form of contract in Canada.

Pricing shown reflects probable construction costs obtainable in the Canada area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.

1.4 Specifications: For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.

1.5 Exclusions: This Construction, Time, & Maintenance Cost-Benefit Report does not provide for the following, if required:

- Land acquisition costs and impost charges
- Development charges
- Legal fees and expenses
- Right of way charges
- Easement costs
- Financing or fund raising costs
- Owner's staff and associated management
- Relocation of existing facilities, including furniture and equipment
- Professional fees and expenses
- Cost of contaminated material removal, if required
- Special audio, visual, security equipment or installation other than provision of empty conduit systems carried in electrical division
- Freight & delivery charges for mass timber building materials
- Loose furniture
- Overtime and restrictive working hours allowance
- Escalation contingency
- Preventative maintenance contracts
- Building permit
- Harmonized Sales Tax

2. DOCUMENTATION

This Construction, Time, & Maintenance Cost-Benefit Report has been prepared from the following documentation:

- Project Assumptions (September 2017).
- Conceptual floor plans + elevations – 12 storey building with a Group C major occupancy (residential) where each storey is 6000m2 in floor area (September 2017).
- Conceptual floor plans + elevations - 12 storey building with a Group D major occupancy (office) where each storey is 7200m2 in floor area (September 2017).
- Brock Commons Phase 1 – University of British Columbia, Vancouver, Canada (July 2016).
- Design and Preconstruction of a Tall Wood Building – Brock Commons Phase 1: Code Compliance (July 2016).
- Wood Use in the Design of Noncombustible Buildings (October 2016).
- Rethink Wood Videos. https://www.youtube.com/channel/UCWQW_lCD1Yk8OGFkjYmtK9Q?sub_confirmation=1

All of the above documentation was received from Hanscomb, Llamaw Studio Inc. and The National Research Council Canada. Documentation was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

3. COST CONSIDERATIONS

3.1 Cost Base:

All costs are estimated on the basis of competitive bids (a minimum of (3) sub-contractor bids for each trade) being received in September 2017 from general contractors and all major sub-contractors and suppliers based on a construction managementform of contract.

If the minimum contractor/sub-contractor conditions are not met, the bids received could exceed the estimate.

3.2 Escalation:

No contingency has been included for construction cost escalation that may occur between September 2017 and the anticipated bid date for the project. Escalation during the construction period is included in the unit rates used in the estimate.

3.3 Contingencies:

A contingency of 15% has been included to cover design and pricing unknowns. This contingency is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners during the remaining contract document stages.

A contingency relevant to each building type has been included to cover construction (post contract) unknowns. It is recommended that a provision for this item be included in the overall program budget.

3.4 Unit Rates:

The unit rates in the preparation of this Construction, Time, & Maintenance Cost-Benefit Report include labour and material, equipment, subcontractor's overheads and profits.

3.5 Taxes:

No provision has been made for the Harmonized Sales Tax. It is recommended that the owner make separate provision for HST in the project budget.

3.6 Statement of Probable Costs:

Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

Hanscomb has prepared this estimate in accordance with generally accepted principles and practices. Hanscomb's staff is available to discuss its contents with any interested party.

3.7 Ongoing Cost Control:

Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that a final update estimate be produced by Hanscomb using Bid Documents to determine overall cost changes which may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

4. GROSS FLOOR AREAS

GROSS FLOOR AREA – 12 STOREYS – RESIDENTIAL:

Description	m2
Floor Plate Area	6,000
TOTAL	**72,000**

GROSS FLOOR AREA – 12 STOREYS – OFFICE:

Description	m2
Floor Plate Area	7,200
TOTAL	**86,400**

The above areas have been measured in accordance with the third edition of the Canadian Institute of Quantity Surveyors' "Measurement of Buildings by Area and Volume".

5. CONSTRUCTION COST COMPARISION SUMMARY

COST SUMMARY – 12 STOREYS – RESIDENTIAL:

	Bldg 1	Bldg 2	Bldg 3	Bldg 4
- Common Elements	$189,267,400	$189,267,400	$189,267,400	$189,267,400
- Structural Elements	$20,833,500	$20,833,500	$26,289,000	$45,930,700
- Encapsulation Elements	$0	$15,977,100	$0	Incl.
Total – Incl. Site & Allowances	**$210,100,900**	**$226,078,000**	**$215,556,400**	**$235,198,100**
- Value Added Tax	$0	$0	$0	$0
Total Construction Estimate	**$210,100,900**	**$226,078,000**	**$215,556,400**	**$235,198,100**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

5. CONSTRUCTION COST COMPARISION SUMMARY

COST SUMMARY – 12 STOREYS – OFFICE:

	Bldg 1	Bldg 2	Bldg 3	Bldg 4
- Common Elements	$151,414,800	$151,414,800	$151,414,800	$151,414,800
- Structural Elements	$24,742,800	$24,742,800	$31,180,700	$53,195,700
- Encapsulation Elements	$0	$17,328,600	$0	Incl.
Total – Incl. Site & Allowances	**$176,157,600**	**$193,486,200**	**$182,595,500**	**$204,610,500**
- Value Added Tax	$0	$0	$0	$0
Total Construction Estimate	**$176,157,600**	**$193,486,200**	**$182,595,500**	**$204,610,500**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

6. TIME TO BUILD COMPARISION SUMMARY

TIME TO BUILD SUMMARY – 12 STOREYS – RESIDENTIAL:

	Bldg 1	Bldg 2	Bldg 3	Bldg 4
- Site Prep & General Conditions	348 days	348 days	547 days	429 days
- Excavations & Foundations	86 days	86 days	86 days	86 days
SUBSTRUCTURE	**86 days**	**86 days**	**86 days**	**86 days**
- Lowest Floor Construction	26 days	26 days	26 days	26 days
- Upper Floor Construction	149 days	149 days	345 days	227 days
STRUCTURE	**174 days**	**174 days**	**371 days**	**252 days**
- Façade/Walls Above Grade	83 days	83 days	272 days	138 days
- Windows & Entrances	15 days	15 days	15 days	15 days
- Roof Coverings	37 days	37 days	37 days	37 days
EXTERIOR ENCLOSURE	**206 days**	**206 days**	**290 days**	**175 days**
- Partitions	207 days	207 days	317 days	207 days
- Doors	171 days	171 days	265 days	178 days
- Finishes	197 days	217 days	290 days	183 days
INTERIORS	**274 days**	**294 days**	**383 days**	**304 days**
FF&E	**120 days**	**120 days**	**120 days**	**120 days**
M&E	**264 days**	**26 days**	**358 days**	**272 days**
SITE WORK	**120 days**	**120 days**	**120 days**	**120 days**
TOTAL TIMELINE	**505 days**	**525 days**	**635 days**	**566 days**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

6. TIME TO BUILD COMPARISION SUMMARY

TIME TO BUILD SUMMARY – 12 STOREYS – OFFICE:

	Bldg 1	Bldg 2	Bldg 3	Bldg 4
- Site Prep & General Conditions	416 days	416 days	620 days	519 days
- Excavations & Foundations	96 days	96 days	96 days	96 days
SUBSTRUCTURE	**96 days**	**96 days**	**96 days**	**96 days**
- Lowest Floor Construction	31 days	31 days	31 days	31 days
- Upper Floor Construction	192 days	192 days	392 days	292 days
STRUCTURE	**223 days**	**223 days**	**424 days**	**323 days**
- Façade/Walls Above Grade	92 days	92 days	304 days	157 days
- Windows & Entrances	18 days	18 days	18 days	18 days
- Roof Coverings	47 days	47 days	47 days	47 days
EXTERIOR ENCLOSURE	**161 days**	**161 days**	**336 days**	**193 days**
- Partitions	245 days	245 days	358 days	245 days
- Doors	203 days	203 days	300 days	203 days
- Finishes	232 days	256 days	328 days	266 days
INTERIORS	**324 days**	**348 days**	**437 days**	**358 days**
FF&E	**128 days**	**128 days**	**128 days**	**128 days**
M&E	**316 days**	**316 days**	**428 days**	**329 days**
SITE WORK	**144 days**	**144 days**	**144 days**	**144 days**
TOTAL TIMELINE	**600 days**	**624 days**	**714 days**	**679 days**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

7. MAITENANCE COST COMPARISION SUMMARY

ANNUAL MAINTENCE – 12 STOREYS – RESIDENTIAL:

Item	Bldg 1	Bldg 2	Bldg 3	Bldg 4
Cleaning	$129,600.00	$129,600.00	$129,600.00	$129,600.00
Elevator	$82,500.00	$82,500.00	$82,500.00	$82,500.00
Fire Safety	$56,250.00	$56,250.00	$56,250.00	$56,250.00
Landscaping	$144,000.00	$144,000.00	$144,000.00	$144,000.00
Security	$9,500.00	$9,500.00	$9,500.00	$9,500.00
Snow removal	$17,000.00	$17,000.00	$17,000.00	$17,000.00
Waste removal	$20,000.00	$20,000.00	$20,000.00	$20,000.00
General Repairs & Improvements	$300,000.00	$300,000.00	$300,000.00	$300,000.00
Potential Structural Improvements (Allowance of 10m2)	$3,470.00	$6,130.00	$4,380.00	$7,650.00
Sub-Total	$762,320.00	$764,980.00	$763,230.00	$766,500.00
Contingency (10%)	$76,232.00	$76,498.00	$76,323.00	$76,650.00
TOTAL	**$838,552.00**	**$841,478.00**	**$839,553.00**	**$843,150.00**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

7. MAITENANCE COST COMPARISION SUMMARY

ANNUAL MAINTENCE – 12 STOREYS – OFFICE:

Item	Bldg 1	Bldg 2	Bldg 3	Bldg 4
Cleaning	$155,520.00	$155,520.00	$155,520.00	$155,520.00
Elevator	$132,000.00	$132,000.00	$132,000.00	$132,000.00
Fire Safety	$60,000.00	$60,000.00	$60,000.00	$60,000.00
Landscaping	$140,000.00	$140,000.00	$140,000.00	$140,000.00
Security	$11,400.00	$11,400.00	$11,400.00	$11,400.00
Snow removal	$17,000.00	$17,000.00	$17,000.00	$17,000.00
Waste removal	$40,000.00	$40,000.00	$40,000.00	$40,000.00
General Repairs & Improvements	$360,000.00	$360,000.00	$360,000.00	$360,000.00
Potential Structural Improvements (Allowance of 10m2)	$3,470.00	$6,130.00	$4,380.00	$7,650.00
Sub-Total	$919,390.00	$922,050.00	$920,300.00	$923,570.00
Contingency (10%)	$91,939.00	$92,205.00	$92,030.00	$92,357.00
TOTAL	**$1,011,329.00**	**$1,014,255.00**	**$1,012,330.00**	**$1,015,927.00**

Acronyms & Building Types:

Please note that for the purposes of this study all common building elements are consistent across all structural building types. Please note the following structural building types being compared in this study.

Bldg 1 = Mass Timber Building Structure
Bldg 2 = Encapsulated Mass Timber Structure
Bldg 3 = Concrete Building Structure
Bldg 4 = Steel Building Structure

8. EXECUTIVE SUMMARY & RECOMMENDATIONS

EXECUTIVE SUMMARY

The predominant non-combustible structure type across Canada remains cast-in-place concrete for all high-rise building types, but especially for multi-family buildings. There is more structural steel used in high rise office buildings due to the speed of erection over concrete but usually the additional cost of steel over concrete offsets this benefit in many cases, especially as you move further west away from Ontario and Quebec. We believe that the last major steel structure built in Western Canada was The Bow in Calgary completed 5 years ago. This of course fluctuates with the value of the Canadian Dollar as most steel is imported and the decision to use steel and its long term order is predicated on that pricing advantage. Both steel and mass timber construction, both being modular, will have similar erection schedules whereas cast-in-place concrete does take longer.

When comparing the structural and architectural characteristics of the four model buildings in this study, we might suggest that the unprotected mass timber construction (MTC) and the unprotected concrete structure share a similar structural expression where the underlying structure can be seen in the finished building because it does not require the same protection when compared to the encapsulated mass timber building or the steel building. Conversely, the encapsulated mass timber (EMTC) building and the steel building are similar because the structure is encapsulated or protected and so the interior finishes in both case are painted gypsum board. Most inhabitants would not be able to tell the difference between an encapsulated steel building or an encapsulated mass timber building.

When comparing the cost-benefits of the four model building types there are several parallel layers to consider:

1. Cost of labour & materials
2. Time to build & construction schedule
3. Maintenance costs & frequency of maintenance

<u>Cost Benefits</u>

When comparing the cost of labour and materials, for both the residential and office model buildings, we find the following cost comparison from lowest to highest based on the structure of the building.

Low Cost = Mass Timber Building Structure (MTC)
Medium Cost = Concrete Building Structure
Medium Cost = Encapsulated Mass Timber Building Structure (EMTC)
High Cost = Steel Building Structure

Our cost comparison studies have shown MTC to be cost-competitive (similar) with concrete. As well as EMTC to be cost-competitive (similar) with steel.

<u>Time Benefits</u>

When comparing the time to build, for both the residential and office model buildings, we find the following comparison from shortest to longest.

Mass Timber Building Structure

Encapsulated Mass Timber Building Structure
Steel Building Structure
Concrete Building Structure

Our construction schedule comparison studies have shown MTC to be time-competitive (similar) with concrete. As well as EMTC to be time-competitive (similar) with steel.

Maintenance Benefits

When comparing the operational and general maintenance costs, for all structural types, we find the common costs to be similar.

The durability of a structural system is dependant on its inherent life span and also how well the building envelope has been designed to protect the structure. For the purposes of this study, all building models have the same exterior enclosure. The lifespan expectancy of each structural system is as follows:

100 years = Mass Timber Building Structure
100 years = Mass Timber Building Structure (protected / encapsulated)
120 years = Concrete Building Structure
120 years = Steel Building Structure (protected / encapsulated)

If and when damage to a structure occurs it may be more expensive to repair a concrete or steel structure when compared to a mass timber structure.

RECOMMENDATIONS – VALUE FOR MONEY

Value for money related to the depreciation of the model buildings in this study can be summarized by understanding the decrease in asset value and the allocation of funds required to maintain the asset over time.

The value proposition for mass timber buildings (with or without encapsulation) is that their initial cost (labour, materials, and construction timeline) combined with the cost to maintain their value over time is competitive with concrete and steel buildings.

At the moment, the main obstacles across Canada may include: production capacity, code concerns, resistance from construction community against wood-based materials, and human perceptions of: durability, fire, acoustics. Our quantitative comparison, however, demonstrates that mass timber buildings and encapsulated mass timber buildings to be cost-benefit competitive with concrete and steel buildings.

Exploring the relationships between structure, encapsulation, and exterior enclosure across Canada, in several different cities and climates simultaneously, would enable a better understanding of the cost-benefits and competitive value for each structural system across the country.

A material lifecycle and energy analysis of each model building type and how much energy each structural type uses and/or embodies in its construction process would be a viable study to assess carbon sequestering and lifecycle of all materials and energy used in the construction process. The value of money and cost-benefits in this case, of using a mass timber structure over a concrete or

steel structure, could perhaps extend to the environment and to the viability for a better environmental future.

Appendix A
Project Assumptions

Project Assumptions

Hanscomb has assembled and assimilated all comments and documentation received to date for the above mentioned project. Please find below a list of model (residential / office) building assumptions for your review and consideration.

DRAWINGS

For this study two sets of conceptual floor plans and elevations have been created:

1. A 12 story building with a Group C major occupancy (residential) where each story is 6,000 m2 in floor area.

2. A 12 story building with a Group D major occupancy (office) where each story is 7,200 m2 in floor area.

GROSS FLOOR AREAS

Gross Floor Area – 12 Storeys – Residential

Description	m2
Floor Plate Area	6,000
TOTAL	**72,000**

Gross Floor Area – 12 Storeys – Office

Description	m2
Floor Plate Area	7,200
TOTAL	**86,400**

GENERAL

To understand, analyze, and compare the cost-benefits of the following model building types:

Building 1 = Mass Timber Building Structure
Building 2 = Encapsulated Mass Timber Building Structure
Building 3 = Concrete Building Structure
Building 4 = Steel Building Structure

Please note that for the purposes of this study all common building elements are consistent across all model building types.

Please note the following general assumptions for all model building types:

1. The model building demonstrates a reasonable allowance for amenity spaces and general service spaces.

2. Wood buildings with balconies, perhaps, bear a higher maintenance cost than concrete buildings with balconies. For the purposes of this study so that the floor plan and general building requirements can be consistent across all building model types no model buildings will have balconies.

3. The model building is built in a non-seismic zone.

4. The model building footings are spread footings, with no ground bearing condition problems.

5. Two layers of 16mm type X gypsum board are used to encapsulate the Mass Timber Structure in the Encapsulated Mass Timber case study. A two-hour fire resistance rating is required.

6. Energy – National Energy Code of Canada for Buildings (NECB 2015).

7. Interior partitions will meet minimum code requirements for fire and acoustics.

8. The construction timeline for each model building is based on the time to build for each structural system and the sequencing of that structural system with common building elements present in all model buildings. For the mass timber structure the prefabrication process has been taken into consideration.

STRUCTURE

The model buildings assume standard spread footings and use the same footings in all case studies.

The structural grid is approximately 3x4 meters and is conservative relative to the mass timber model building case studies. The model buildings account for the same number of columns in all three case studies.

The model buildings follow a similar structural logic to the Brock Commons building:

- a one-story concrete podium
- concrete elevator cores + stair cores
- vertical loads are carried by the timber structure while the concrete cores provide lateral stability and passive fire protection
- glulam (GLT) columns with quick-to-install steel connectors provide a direct load transfer between the columns
- 5-ply cross-laminated timber (CLT) slab panels on a 3m x 4m structural grid that acts as a concrete flat slab

Mass Timber Building Structure

1. Foundation – cast-in-place concrete spread footings and piers.
2. Elevator & Stair Cores – cast-in-place concrete structure.
3. Podium – slab on grade, L1 columns, L2 floor slab – cast-in-place concrete structure.
4. Superstructure – hybrid structure. CLT floor slabs c/w glulam columns and steel connectors
5. Assume low-intensity green roof (shrubs & wild grasses) in some areas. Assume roof amenity for residential building model.

Encapsulated Mass Timber Building Structure

1. Foundation – cast-in-place concrete spread footings and piers.
2. Elevator & Stair Cores – cast-in-place concrete structure.
3. Podium – slab on grade, L1 columns, L2 floor slab – cast-in-place concrete structure.
4. Superstructure – hybrid structure. CLT floor slabs c/w glulam columns and steel connectors.
5. Encapsulated Superstructure – all vertical and horizontal structural wood elements encapsulated with 2 layers of 16mm type X gypsum wallboard.
6. Assume low-intensity green roof (shrubs & wild grasses) in some areas. Assume roof amenity for residential building model.

Concrete Building Structure

1. Foundation – cast-in-place concrete spread footings and piers.
2. Elevator & Stair Cores – cast-in-place concrete structure.
3. Podium & Superstructure – cast-in-place concrete structure.
4. Assume low-intensity green roof (shrubs & wild grasses) in some areas. Consider roof amenity for residential building model.

Steel Building Structure

1. Foundation – cast-in-place concrete spread footings and piers.
2. Elevator & Stair Cores – cast-in-place concrete structure.
3. Podium – slab on grade, L1 columns, L2 floor slab – cast-in-place concrete structure.
4. Superstructure – standard steel construction.
5. Assume low-intensity green roof (shrubs & wild grasses) in some areas. Assume roof amenity for residential building model.

EXTERIOR ENCLOSURE

The facade is made up of prefabricated panels (steel stud partitions c/w pre-installed high-performance glazing and high-pressure wood laminate panels). The high-pressure laminate panels consist of 70% wood-based fibers.

The latest Low-E coating technology available incorporates three silver layers and multiple ceramic layers. The "triple silver" Low-E coatings offer approximately 70% visible light transparency and 30% better thermal performance compared to "double silver" Low-E coatings.

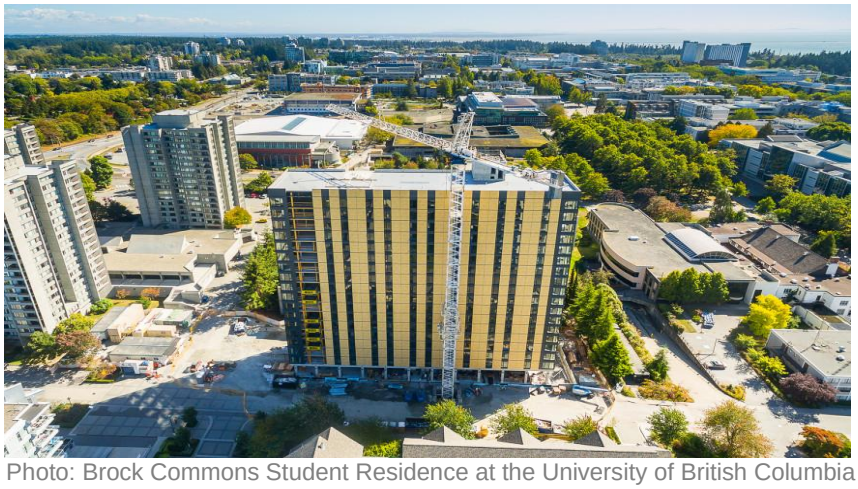


Photo: Brock Commons Student Residence at the University of British Columbia

INTERIORS

For this study, all building types will use the same interior partition types, door types, fittings, fixtures, millwork, equipment, and elevators. Low-carbon production, value for money, and little annual maintenance best practices considered.

A lightweight concrete topping is used to stabilize the radiant floor heating. A radiant floor heating system will enable optimal occupant comfort and return to annual heating and cooling costs for the residents and the building owner. We have allowed for porcelain tile in bathrooms, kitchens, and entrances.

To create a cultural connection to the building, we feel that it is important to express the structural characteristics of each building type within the building's interior. Limiting the addition of interior finishes enables a return to the project budget and to the project build timeline. Please find below our assumptions relating to the interior ceiling finishes and wall finishes.

Mass Timber Construction (MTC)

1. ceiling finishes – exposed wood structure and painted drywall (where the encapsulation of the mass timber structure is required)
2. wall finishes – exposed wood structure and painted drywall (where the encapsulation of the mass timber structure is needed).

Photo: Wood Innovation and Design Centre at the University of British Columbia

Encapsulated Mass Timbre Construction (EMTC)

1. ceiling finishes – painted drywall (encapsulated mass timber structure)
2. wall finishes – painted drywall (encapsulated mass timber structure)

Photo: Brock Commons Student Residence at the University of British Columbia

Concrete Construction (CONC)

1. ceiling finishes – exposed concrete structure and painted drywall (where the encapsulation of the mass timber structure is needed).
2. wall finishes – exposed concrete structure and painted drywall (where the encapsulation of the mass timber structure is required).

Photo: Exposed Concrete Interior via Google Images.

Steel Construction

1. ceiling finishes – painted drywall (encapsulated steel structure)
2. wall finishes – painted drywall (encapsulated steel structure)

Photo: Encapsulated Steel Interior via Google Images.

MECHANICAL SERVICES

Where possible the model building has been designed to target the National Energy Code of Canada for Buildings (NECB 2015).

Including a radiant floor heating system, enables optimal occupant comfort and return to the annual heating and cooling costs for the residents and the building owner. Energy efficient HVAC systems used where required. A provision for low flow water fixtures has been included.

ELECTRICAL SERVICES

Where possible the model building has been designed to target the National Energy Code of Canada for Buildings (NECB 2015). A provision for LED lighting has been included.

SITE WORK

A provision for basic mechanical and electrical site services as well as site development and landscape elements has been included.

RESIDENTIAL AMENITIES

Given the building's size, and the present condo market, we feel that it is necessary for the model building to consider and to include amenity spaces. This conceptual planning step will enable a meaningful and realistic GFA cost-benefit analysis.

We might suggest that a rooftop terrace and a few interior lounge spaces be appropriate and useful amenity/community space for the model residential building. The terrace would bear the same construction cost and the same maintenance cost for all three case studies. The green space, bicycle track, and outdoor gym offers a balanced lifestyle and would be relatively low to maintain compared to pools, indoor gyms, and balconies.

LIMITATIONS / FINDINGS

The gross floor areas are quite large and would pose the same spatial challenge for most large buildings: having access to natural light and fresh air becomes limited in a larger building. In the case of the residential building the floorplate becomes a long and narrow building to achieve the required code minimums.

For this study, the architectural drawings respond to the spatial need for natural light and ventilation by expressing a floorplate that is long and shallow in overall depth. A more elaborate solution would be to have interconnected floor plates (achieving the same overall gross floor area) with interconnecting bridges on each floor and perhaps a much larger site footprint with a centralized courtyard.

FUTURE WORK

Suggestion A

Comparing different types of structures allows the industry and its professionals to create an understanding and associated meaning with the product or building.

Both EMTC and MTC construction enable a building to be pre-fabricated to a certain degree. Perhaps, a faster, safer, and more environmentally conscious way to design and construct buildings.

We might suggest that a cost-benefit study comparing and analyzing the similarities and differences between different types of prefabricated construction methods (i.e. EMTC, MTC, Peikko, etc.) would enable an understanding of the cost-benefits for pre-fab construction as well as the environmental impacts inherent in each process.

Suggestion B

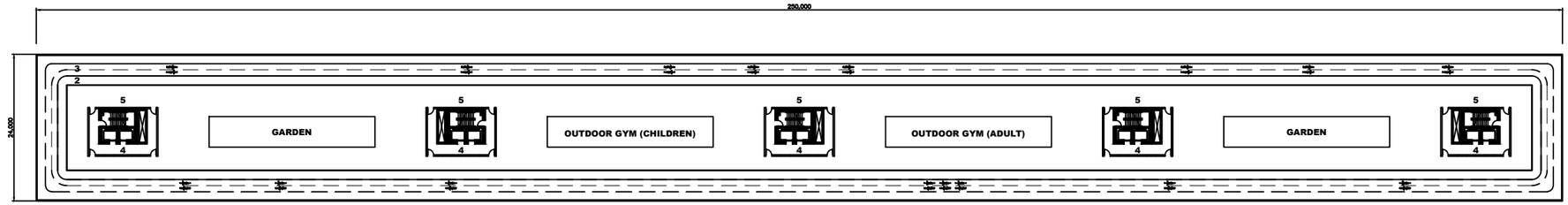
Comparing different types of structures allows the industry and its professionals to consider the contrasts and intersections of designing, constructing, and living within different building types.

A large-scale study, where one develops architectural and urban planning drawings for a community of EMTC / MTC buildings could enable a contextual analysis and understanding of the relational complexities (code, culture, cost, maintenance, perception) related to this type of community building.

We might suggest that this kind of study could highlight the strengths and weakness of wood construction in Canada. If the same program could be tested in various provinces and locations,

it would illustrate the market value and market constraints of wood construction in Canada in localized communities. It would also enable an understanding of building code, construction volume, multiple timelines, complex supply chains, and the anticipated construction value related to encapsulated mass timber construction and mass timber construction at an urban scale.

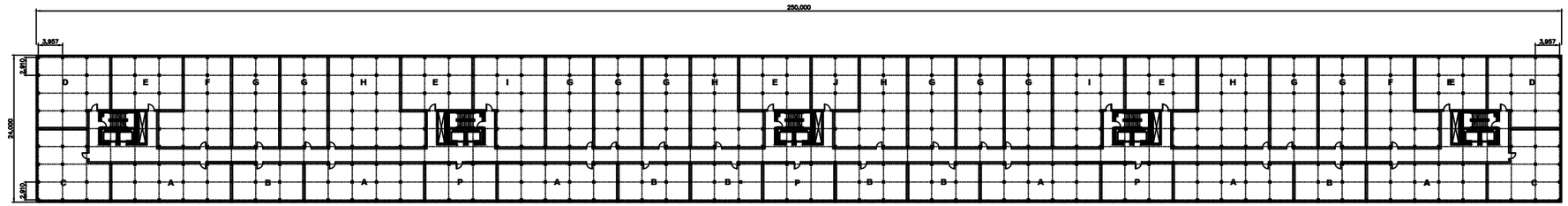
Appendix B
Conceptual Floor Plans & Elevations
Residential Building



Conceptual Floor Plan - 6,000 m2
Occupancy Type - Group C (Residential)
Roof Terrace Plan

1 - Mid-Block Connection
2 - Greenscape (wild grasses & shrubs)
3 - Track (bike / walk / run)

4 - Green Roof (above)
5 - Artwork



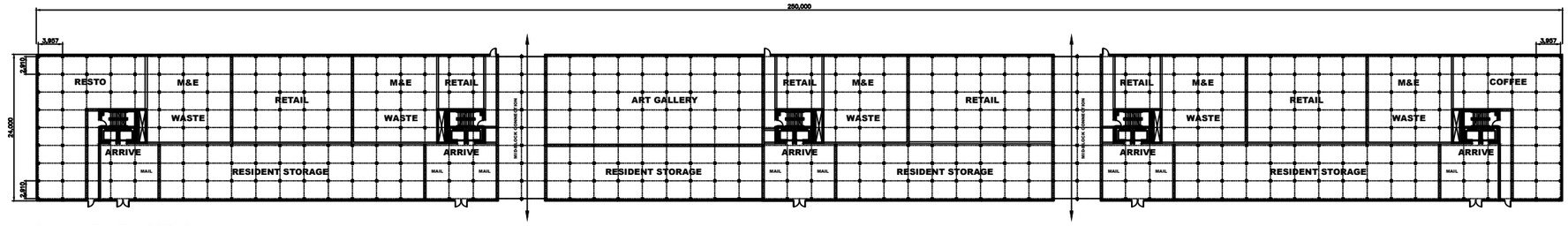
Conceptual Floor Plan - 6,000 m2
Occupancy Type - Group C (Residential)
Typical Floor Plan

P - Lounge / Party Room
A - 2 Bed / 1 Powder / 1 Bath
B - 1.5 Bed / 1 Bath

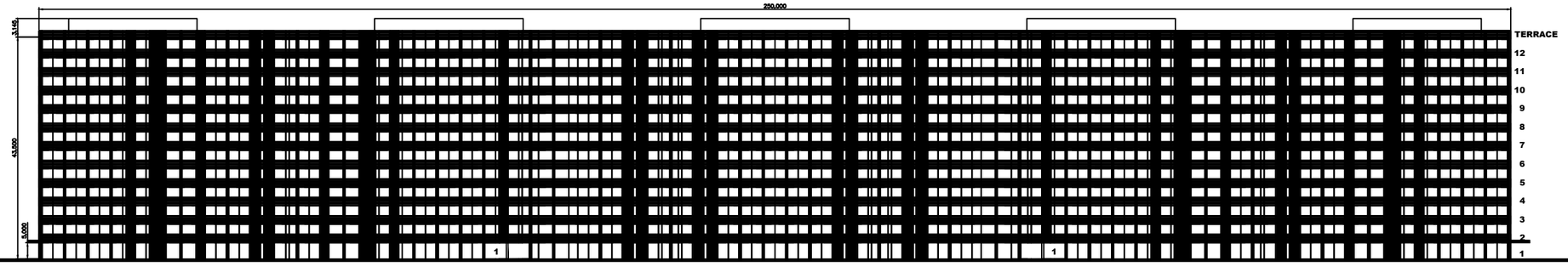
C - 1 Bed / 1 Bath / Loft Style
D - 1 Bed / 1 Bath / Loft Style
E - 1.5 Bed / 1 Bath

F - 1 Bed / 1 Bath / Loft Style
G - Studio / 1 Bath
H - 2 Bed / 2 Bath / 1 Powder / 1 Den

I - 2 Bed / 2 Bath
J - Studio / 1 Bath



Conceptual Floor Plan - 6,000 m2
Occupancy Type - Group C (Residential)
Ground Floor Plan



Conceptual Elevation
Occupancy Type - Group C (Residential)

1 - Mid-Block Connection

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Financial Analysis

BUILDING MODEL STUDY
DRAWINGS ONLY

NOT FOR CONSTRUCTION

SUBMITTALS

DATE:	DESCRIPTION:
170605	NRC REVIEW
170505	NRC REVIEW
170503	INTERNAL REVIEW
170821	NRC REVIEW
170914	NRC REVIEW

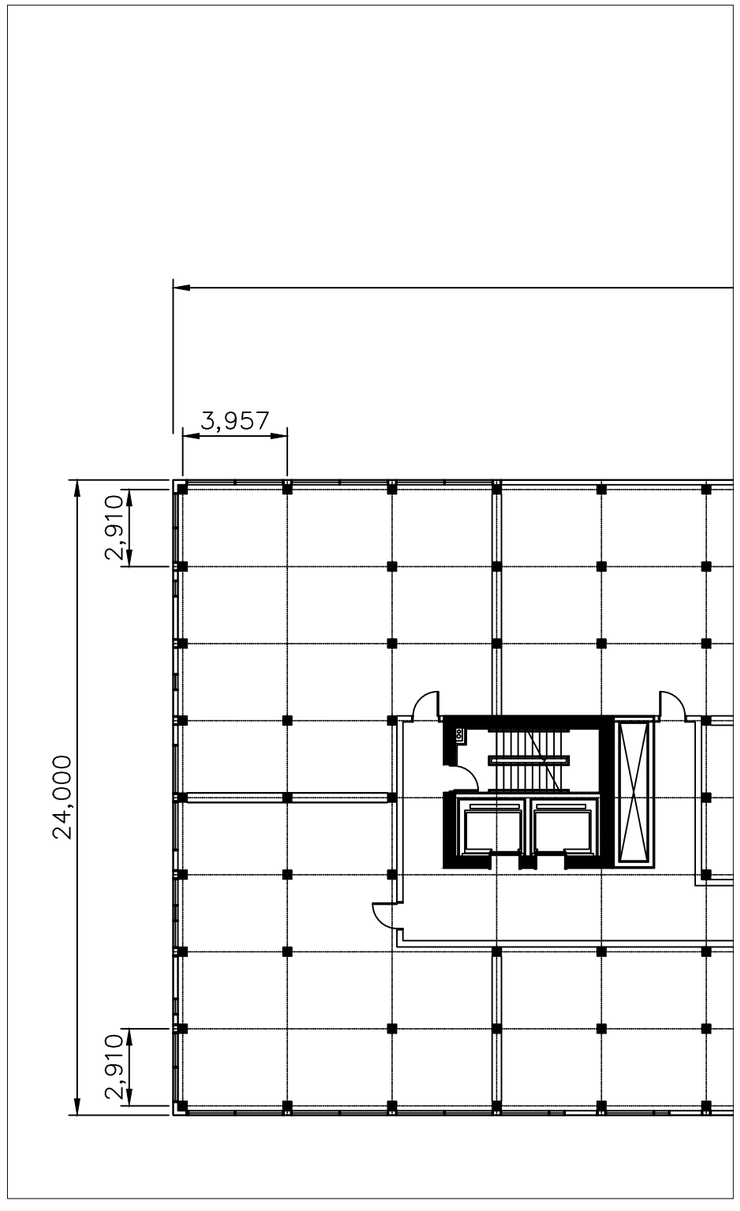
EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

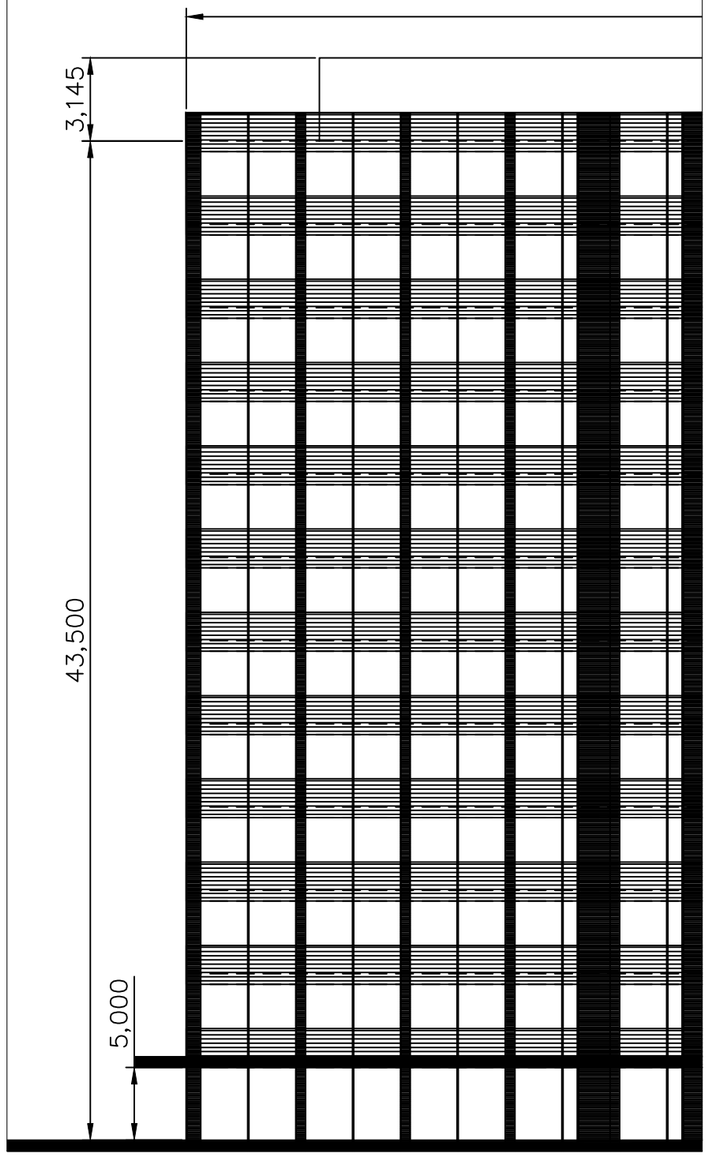
LLAMAW STUDIO INC.
131 HOLLAND AVE., UNIT 705
OTTAWA, ONTARIO, K1Y 3A2

RESIDENTIAL

A1



Structural Grid



Elevation

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EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

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131 HOLLAND AVE., UNIT 705
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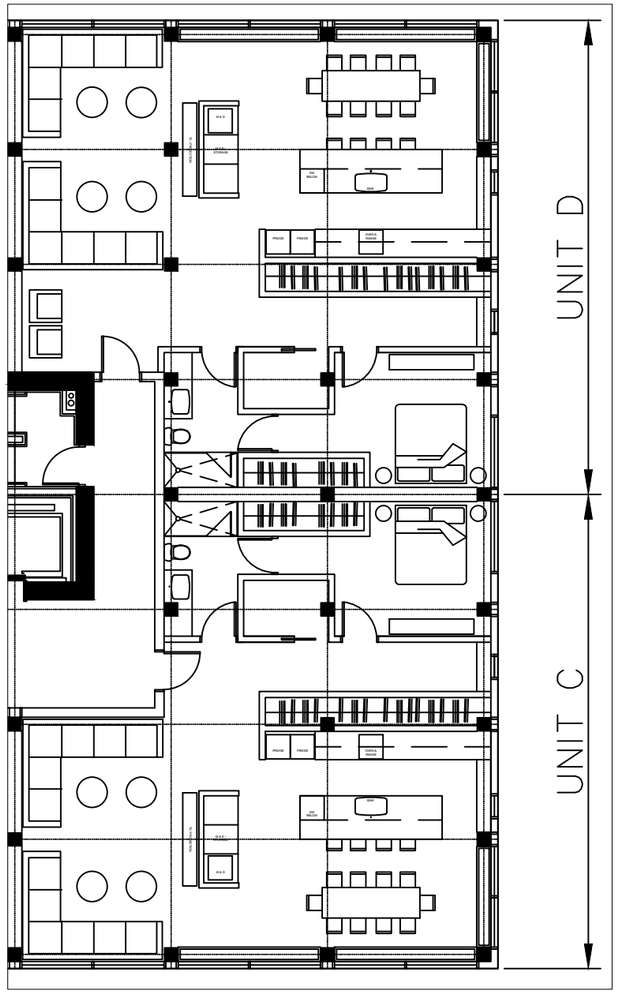
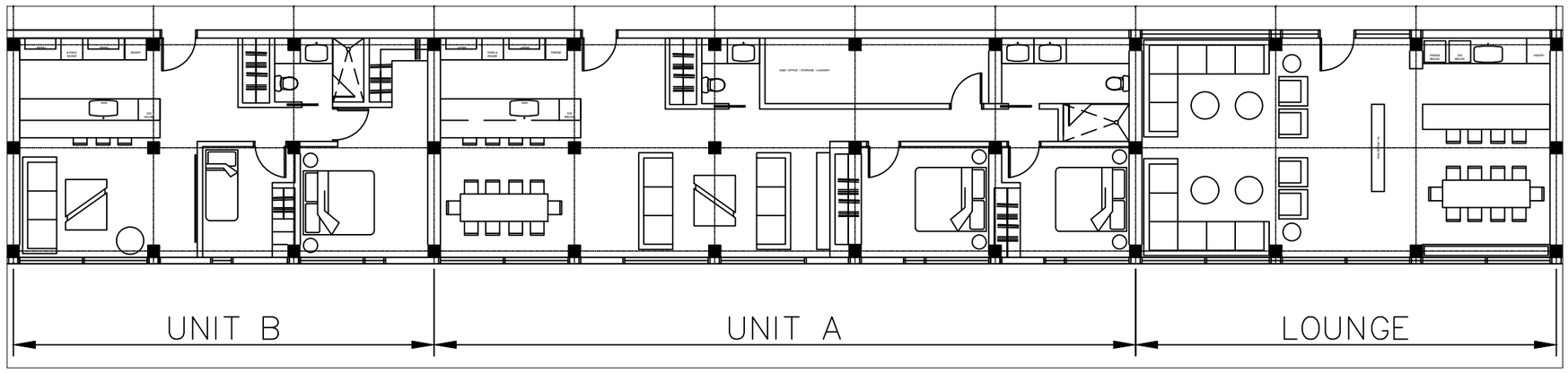
RESIDENTIAL

A2





Canada
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EMTC - COST COMPARISON

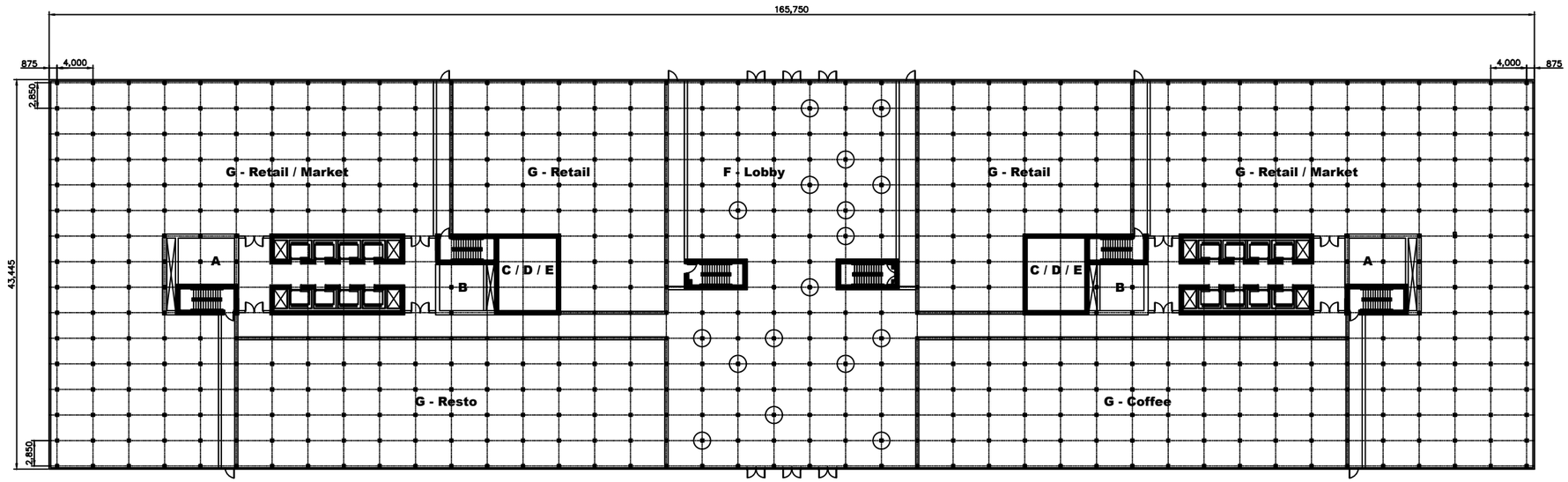
LOCATION: CANADA WIDE
DATE: APRIL 2017

LLAMAW STUDIO INC.
131 HOLLAND AVE., UNIT 705
OTTAWA, ONTARIO, K1Y 3A2

RESIDENTIAL

A3

Appendix C
Conceptual Floor Plans & Elevations
Office Building

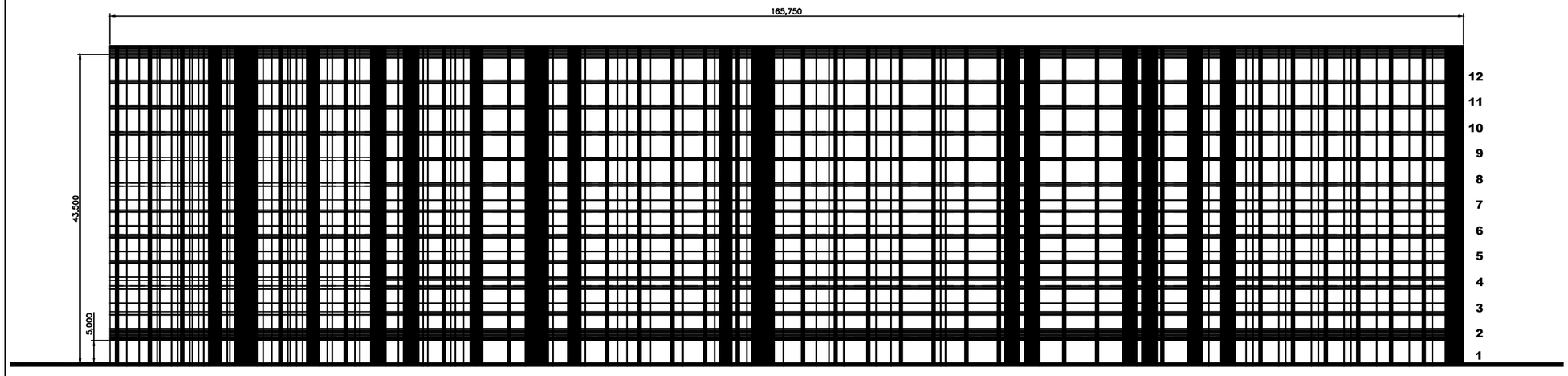


Conceptual Floor Plan - 7,200 m2
Occupancy Type - Group D (Office)
Typical Ground Floor Plan

A - Female Washrooms - 6 wc / 3 sinks
B - Male Washrooms - 6 wc / 3 sinks
C - Electrical Room

D - Mechanical Room
E - Telecom Room
F - Lobby

G - Retail / Market
H - Resto / Coffee



Conceptual Elevation
Occupancy Type - Group D (Office)

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BUILDING MODEL STUDY
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170503	INTERNAL REVIEW
170821	NRC REVIEW
170914	NRC REVIEW

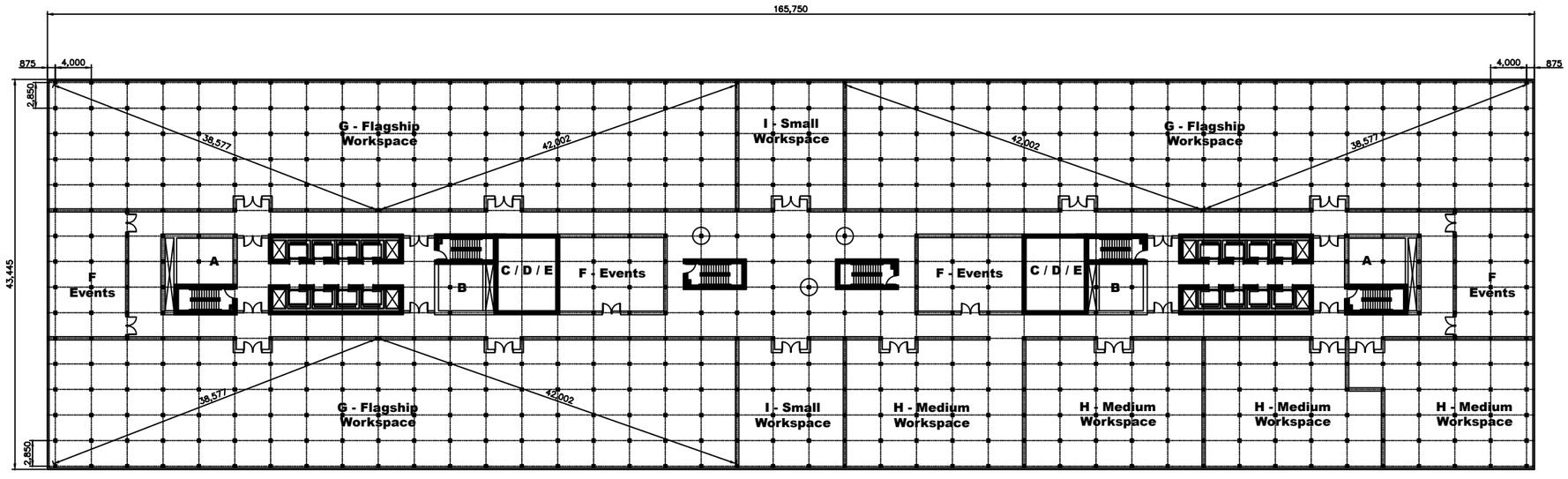
EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

LLAMAW STUDIO INC.
131 HOLLAND AVE., UNIT 705
OTTAWA, ONTARIO, K1Y 3A2

OFFICE

A1



Conceptual Floor Plan - 7,200 m2
Occupancy Type - Group D (Office)
Typical Floor Plan

A - Female Washrooms - 6 wc / 3 sinks
B - Male Washrooms - 6 wc / 3 sinks
C - Electrical Room

D - Mechanical Room
E - Telecom Room
F - Shared Meeting Room (On-boarding / Training / Conference / Events)

G - Flagship Workspace (+/- 1,140 m2)
H - Medium Workspace (+/- 300 m2)
I - Small Workspace (+/- 165 m2)

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BUILDING MODEL STUDY
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SUBMITTALS

DATE:	DESCRIPTION:
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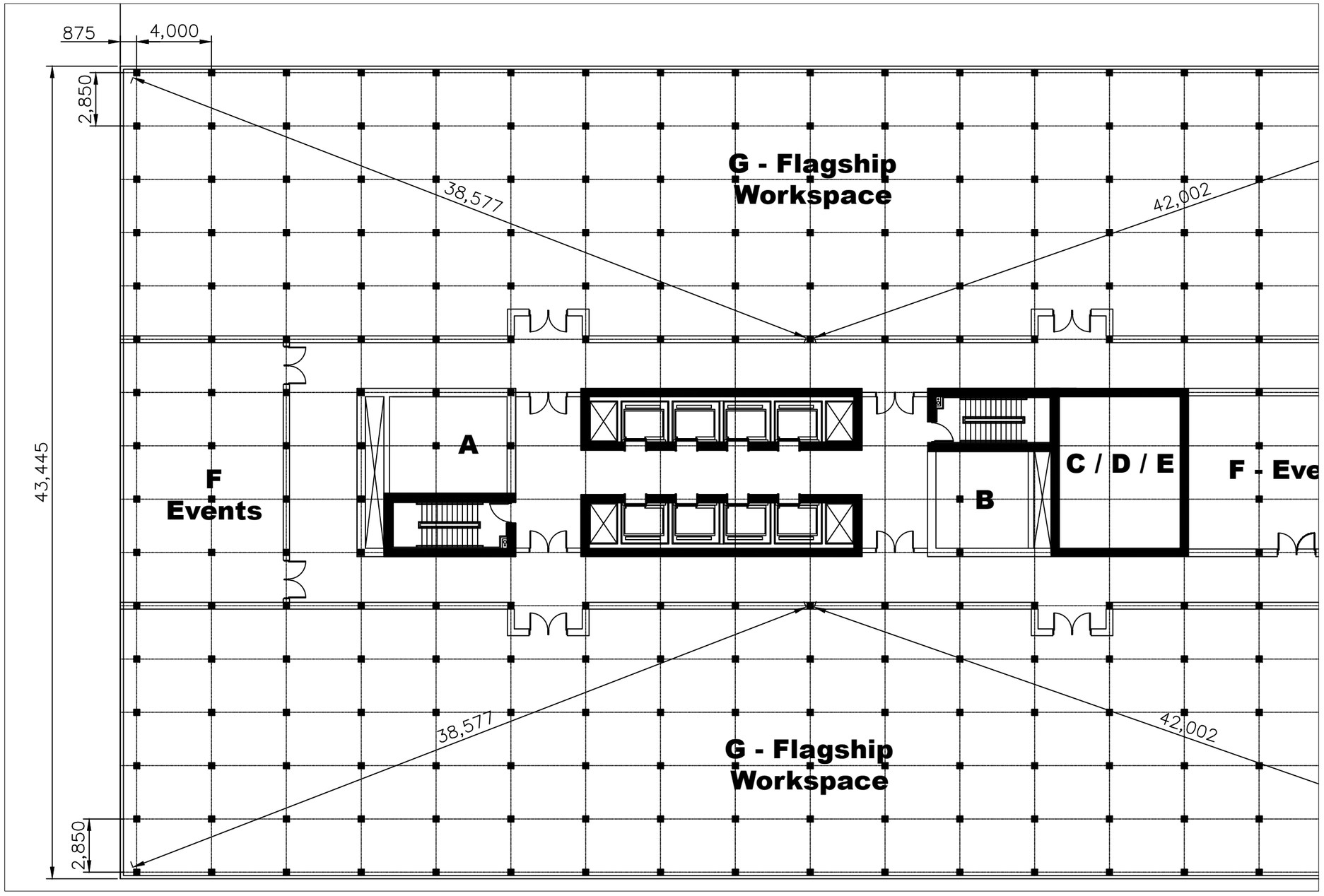
EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

LLAMAW STUDIO INC.
131 HOLLAND AVE., UNIT 705
OTTAWA, ONTARIO, K1Y 3A2

OFFICE

A2



Structural Grid & Core

Canada
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BUILDING MODEL STUDY
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SUBMITTALS

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EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

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131 HOLLAND AVE., UNIT 705
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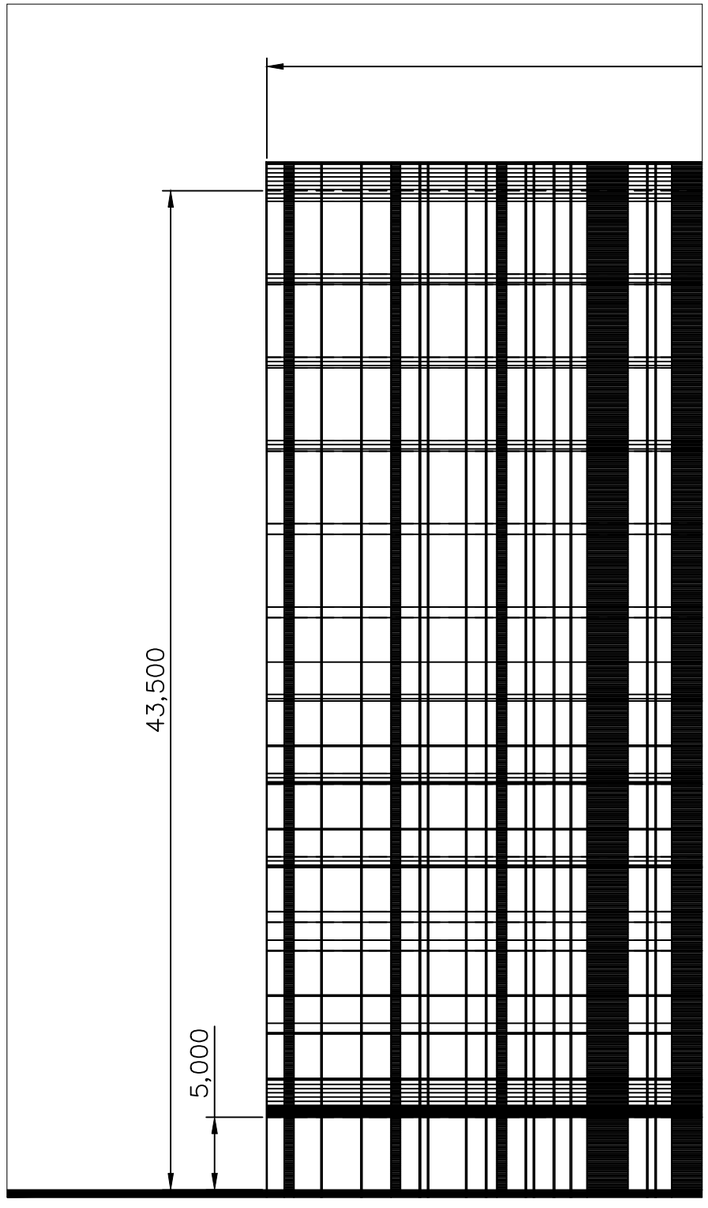
OFFICE

A3



Elevation

Canada
NRC·CNRC

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Construction Cost Planning & Control
Financial Analysis

BUILDING MODEL STUDY
DRAWINGS ONLY

NOT FOR CONSTRUCTION

SUBMITTALS

DATE:	DESCRIPTION:
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EMTC - COST COMPARISON

LOCATION: CANADA WIDE
DATE: APRIL 2017

LLAMAW STUDIO INC.
131 HOLLAND AVE., UNIT 705
OTTAWA, ONTARIO, K1Y 3A2

OFFICE

A4

Appendix D
Detailed Cost Comparison & Elemental Cost Estimates
Residential Building

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Residential: Common Elements**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 72,000 m2

Element	Ratio to GFA	Elemental Cost Quantity	Elemental Cost Unit rate	Elemental Amount Sub-Total	Elemental Amount Total	Rate per m2 Sub-Total	Rate per m2 Total	%
A SHELL		72,000 m2			38,059,600		528.61	23.3
A1 SUBSTRUCTURE					4,117,800		57.19	2.5
A11 Foundations	0.080	6,000 m2	683.00	4,097,800		56.91		
A12 Basement Excavation				0		0.00		
A13 Special Conditions	0.000	1 Sum	20,000.00	20,000		0.28		
A2 STRUCTURE					7,726,700		107.32	4.7
A21 Lowest Floor Construction	0.080	6,000 m2	161.00	963,900		13.39		
A22 Upper Floor Construction	0.080	6,000 m2	1,127.00	6,762,800		93.93		
A23 Roof Construction				0		0.00		
A3 EXTERIOR ENCLOSURE					26,215,100		364.10	16.1
A31 Walls Below Grade				0		0.00		
A32 Walls Above Grade	0.350	24,885 m2	913.00	22,725,900		315.64		
A33 Windows & Entrances	0.000	160 no.	1,160.00	185,600		2.58		
A34 Roof Coverings	0.080	6,000 m2	434.00	2,602,500		36.15		
A35 Projections	0.020	1,087 m2	645.00	701,100		9.74		
B INTERIORS		72,000 m2			61,448,300		853.45	37.6
B1 PARTITIONS & DOORS					27,705,300		384.80	17.0
B11 Partitions	1.430	102,916 m2	131.00	13,455,300		186.88		
B12 Doors	0.080	5,700 No	2,500.00	14,250,000		197.92		
B2 FINISHES					15,298,100		212.47	9.4
B21 Floor Finishes	1.000	72,000 m2	122.00	8,805,000		122.29		
B22 Ceiling Finishes	0.330	24,000 m2	45.00	1,080,000		15.00		
B23 Wall Finishes	3.100	223,532 m2	24.00	5,413,100		75.18		
B3 FITTINGS & EQUIPMENT					18,444,900		256.18	11.3
B31 Fittings & Fixtures	1.000	72,000 m2	128.00	9,185,800		127.58		
B32 Equipment	1.000	72,000 m2	68.00	4,884,100		67.83		
B33 Elevators	0.000	10 No	437,500.00	4,375,000		60.76		
B34 Escalators				0		0.00		
C SERVICES		72,000 m2			39,552,600		549.34	24.2
C1 MECHANICAL					26,476,600		367.73	16.2
C11 Plumbing & Drainage	1.000	72,000 m2	109.00	7,882,700		109.48		
C12 Fire Protection	1.000	72,000 m2	44.00	3,165,600		43.97		
C13 HVAC	1.000	72,000 m2	176.00	12,692,300		176.28		
C14 Controls	1.000	72,000 m2	38.00	2,736,000		38.00		
C2 ELECTRICAL					13,076,000		181.61	8.0
C21 Service & Distribution	1.000	72,000 m2	40.00	2,880,000		40.00		
C22 Lighting, Devices & Heating	1.000	72,000 m2	81.00	5,860,000		81.39		
C23 Systems & Ancillaries	1.000	72,000 m2	60.00	4,336,000		60.22		
NET BUILDING COST - EXCLUDING SITE				**$**	**139,060,500**		1,931.40	85.1
D SITE & ANCILLARY WORK		72,000 m2			5,109,000		70.96	3.1
D1 SITE WORK					5,109,000		70.96	3.1
D11 Site Development	0.360	26,200 m2	150.00	3,930,000		54.58		
D12 Mechanical Site Services	0.360	26,200 m2	25.00	655,000		9.10		
D13 Electrical Site Services	0.360	26,200 m2	20.00	524,000		7.28		
D2 ANCILLARY WORK					0		0.00	0.0
D21 Demolitions				0		0.00		
D22 Alterations				0		0.00		
NET BUILDING COST - INCLUDING SITE				**$**	**144,169,500**		2,002.35	88.3
Z1 GENERAL REQUIREMENTS & FEE					19,174,600		266.31	11.7
Z11 General Requirements		10.0 %		14,417,000		200.24		
Z12 Fee		3.0 %		4,757,600		66.08		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**163,344,100**		2,268.67	100.0
Z2 ALLOWANCES					25,923,300		360.05	
Z21 Design & Pricing Allowance		10.0 %		16,334,400		226.87		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		8,983,900		124.78		
Z24 Cash Allowance		1 sum	605,000.00	605,000		8.40		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**189,267,400**		2,628.71	
_ **VALUE ADDED TAX (GST/HST)**					0		0.00	
__ Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**189,267,400**	**$**	**2,628.71**	

A1 SUBSTRUCTURE	Quantity	Unit rate	Amount	Remarks
A11 Foundations				
Footings. Bearing on rock / undisturbed soil.				
1 Strip footing. Reinforced concrete. 600x300mm.	548 m	123.70	67,800	
- Concrete supply	99 m3	169.00	16,700	
- Concrete placing	99 m3	35.00	3,500	
- Rebar allowance, 55kg/m3	5,425 kg	2.10	11,400	
- Formwork allowance, sides	329 m2	110.00	36,200	
2 Pad footing. Reinforced concrete. 2800x2800x700mm.	534 no.	2,123.00	1,133,700	
- Concrete supply	2,931 m3	169.00	495,300	
- Concrete placing	2,931 m3	35.00	102,600	
- Rebar allowance, 55kg/m3	161,183 m3	2.10	338,500	
- Formwork allowance, sides	1,794 m2	110.00	197,300	
3 Slab below elevator & stair cores. Reinforced concrete. 50m2 in area x 1.5m thick.	5 no.	28,920.00	144,600	
- Concrete supply	375 m3	169.00	63,400	
- Concrete placing	375 m3	35.00	13,100	
- Rebar allowance, 55kg/m3	20,625 m3	2.10	43,300	
- Formwork allowance, sides	225 m2	110.00	24,800	
Walls & piers. Allow 3m.				
4 Foundation wall. Reinforced concrete. 250mm thick.	548 m	899.80	493,100	
- Concrete supply	411 m3	169.00	69,500	
- Concrete placing	411 m3	35.00	14,400	
- Rebar allowance, 55kg/m3	22,605 kg	2.10	47,500	
- Formwork allowance, sides	3,288 m2	110.00	361,700	
5 Pier. Reinforced concrete. 300x300mm.	534 no.	482.00	257,400	
- Concrete supply	144 m3	169.00	24,300	
- Concrete placing	144 m3	35.00	5,000	
- Rebar allowance, 55kg/m3	7,930 m3	2.10	16,700	
- Formwork allowance, sides	1,922 m2	110.00	211,400	
		Carried Forward :	2,096,600	

A1 SUBSTRUCTURE		Quantity	Unit rate	Amount	Remarks
A11 Foundations (Continued)			**Brought Forward :**	2,096,600	
Allowances / Other					
6 Clearing & grubbing.		6,000 m2	15.00	90,000	
7 Perimeter drain c/w filter socket and granular cover.		548 m	35.00	19,200	
8 Damproofing and rigid insulation to perimeter foundation wall.		1,644 m2	60.00	98,600	
9 Allowance for expansion joint at foundation level. Two locations.		48 m	300.00	14,400	
10 Backfill - granular A (19mm) compacted material. Allow 300mm.		1,800 m3	45.00	81,000	
11 Backfill - granular B (25-50mm) compacted material. Allowance.		16,200 m3	40.00	648,000	
12 Under slab drainage, sump pumps / pits.		6,000 m2	15.00	90,000	
13 Excavation. Allow a depth of 3m.		24,000 m3	40.00	960,000	
A11 Foundations	**TOTAL : $**	6,000 m2	682.97	4,097,800	

A1 SUBSTRUCTURE	Quantity	Unit rate	Amount	Remarks
A13 Special Conditions				
1 Dewatering during excavation.	1 sum	20,000.00	20,000	
2 Contaminated soil removal, not included.		Nil		
3 Rock excavation, not included.		Nil		
A13 Special Conditions **TOTAL : $**	1 Sum	20,000.00	20,000	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A21 Lowest Floor Construction				
1 Slab on grade. Thickness = 250mm. Rebar = 100kg/m3.	6,000 m2	98.30	589,500	
- Concrete supply	1,500 m3	156.00	234,000	
- Concrete placing	1,500 m3	35.00	52,500	
- Rebar allowance, WWM	6,000 m2	12.00	72,000	
- Screed / cure finish	6,000 m2	10.00	60,000	
- Isolation / control joints	6,000 m2	6.00	36,000	
- Formwork allowance, staggered pour	1 sum	135,000.00	135,000	
2 Allowance for insulation below grade. 75mm rigid insulation below slab on grade.	6,000 m2	60.00	360,000	
3 Allowance for expansion joints at grade level. Two locations.	48 m	300.00	14,400	
A21 Lowest Floor Construction **TOTAL : $**	6,000 m2	160.65	963,900	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
1 Flat plate slab. 2-way reinforced concrete. Thickness = 250mm. Rebar = 100kg/m3.	6,000 m2	228.00	1,368,000	
- Concrete supply	1,500 m3	163.00	244,500	
- Concrete placing	1,500 m3	35.00	52,500	
- Rebar allowance, 100kg/m3	150,000 kg	2.10	315,000	
- Screed / cure finish	6,000 m2	10.00	60,000	
- Isolation / control joints	6,000 m2	6.00	36,000	
- Formwork allowance	6,000 m2	110.00	660,000	
2 Columns. 300x300mm. 534 per floor. Reinforced concrete.	534 no.	733.70	391,800	
- Concrete supply	375 m3	169.00	63,400	
- Concrete placing	38 m3	35.00	1,300	
- Rebar allowance, 200kg/m3	7,500 m3	2.10	15,800	
- Formwork allowance	2,830 m2	110.00	311,300	
3 Stair & elevator cores. Reinforced concrete. 400mm thick. Allow 47.5m in height.	9,265 m2	467.20	4,328,600	
- Concrete supply	3,706 m3	163.00	604,100	
- Concrete placing	3,706 m3	35.00	129,700	
- Rebar allowance, 200kg/m3	741,200 kg	2.10	1,556,500	
- Formwork allowance	18,530 m2	110.00	2,038,300	
4 Concrete filled metal pan stairs and landings c/w painted steel pipe handrails.	66 flight	10,000.00	660,000	
5 Allowance for expansion joint. Two locations.	48 m	300.00	14,400	
A22 Upper Floor Construction **TOTAL : $**	6,000 m2	1,127.13	6,762,800	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A32 Walls Above Grade				
1 CW-1. Level 1. Double glazed with a high preformance thermal break. Unitized curtain wall assembly.	3,085 m2	1,200.00	3,702,000	
2 EW-1. Solid panel finish. Pre-fab panel system designed to suit structural grid.	10,900 m2	402.00	4,381,800	
- 19mm douglas fir slat siding	10,900 m2	150.00	1,635,000	
- Vertical J-channels & horizontal Z-grits.	10,900 m2	40.00	436,000	
- 200mm roxul cavity rock semi-rigid wool insulation	10,900 m2	70.00	763,000	
- Peel and stick air/vapour barrier	10,900 m2	20.00	218,000	
- 16mm (5/8") unsanded fir plywood	10,900 m2	21.00	228,900	
- 200mm steel studs 400mm o.c.	10,900 m2	75.00	817,500	
- 16mm gwb or wood wall board	10,900 m2	26.00	283,400	
3 EW-2. Glazing c/w operable windows. Pre-fab panel system designed to suit structural grid.	10,900 m2	1,200.00	13,080,000	
4 Allowance for steel perimeter angle. 120x120x15mm. 27kg/m. Connections included.	177,552 kg	5.00	887,800	
5 Allowance for flashing, sealing, and caulking.	24,885 m2	25.00	622,100	
6 Allowance for vertical expansion joint. Four locations.	174 m	300.00	52,200	
A32 Walls Above Grade **TOTAL : $**	24,885 m2	913.24	22,725,900	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A33 Windows & Entrances				
1 Glazed vestibule door c/w frame and standard hardware.	12 pair	10,300.00	123,600	
- Double door	12 pair	4,000.00	48,000	
- Allowance for push-button door operator	12 no.	3,200.00	38,400	
- Allowance for hardware upgrade	12 no.	600.00	7,200	
- Allowance for electronic card access	12 no.	2,500.00	30,000	
2 Exterior metal door. Single door c/w frame and door closer.	20 No.	3,100.00	62,000	
- Single door	20 no.	2,500.00	50,000	
- Allowance for hardware upgrades	20 no.	600.00	12,000	
A33 Windows & Entrances **TOTAL : $**	160 no.	1,160.00	185,600	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A34 Roof Coverings				
1 Modified bituminous membrane roofing system c/w 2-ply membrane, 150mm rigid insulation sloped to drain, 6mm plywood, air/vapour barrier.	6,000 m2	145.00	870,000	
2 Hardscape. Precast concrete pavers.	2,072 m2	350.00	725,200	
3 Greenscape. Landscaping, indigenous plants + grasses. Compatible with stormwater collection system. Leak detection system included.	2,362 m2	325.00	767,700	
4 Bikescape. Engineered wood fibre.	1,089 m2	55.00	59,900	
5 Gymscape. Engineered wood fibre.	300 m2	55.00	16,500	
6 Allowance for expansion joints at roof level. Two locations.	48 m	275.00	13,200	
7 Allowance for flashing, sealing, and caulking.	6,000 m2	25.00	150,000	
A34 Roof Coverings **TOTAL : $**	6,000 m2	433.75	2,602,500	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A35 Projections				
1 Allowance for soffits at mid-block connections. Cladding type EW-1.	500 m2	401.00	200,500	
- 19mm douglas fir slat siding	500 m2	150.00	75,000	
- Vertical J-channels & horizontal Z-griits	500 m2	40.00	20,000	
- 16mm (5/8") unsanded fir plywood	500 m2	21.00	10,500	
- 200mm steel studs 400mm o.c.	500 m2	75.00	37,500	
- 200mm roxul cavity rock semi-rigid wool insulation	500 m2	70.00	35,000	
- Peel and stick air/vapour barrier	500 m2	20.00	10,000	
- Flashing, sealing, and caulking.	500 m2	25.00	12,500	
2 Allowance for roof parapet. Cladding type EW-1. Height = 1070mm.	548 m	908.60	497,900	
- Steel. Top rail. HSS 102x102x6.4 Mass = 18kg/m.	9,864 kg	6.00	59,200	
- Steel. Vertical supports. HSS 102x102x6.4. Mass = 18kg/m.	5,932 kg	6.00	35,600	
- Steel. Base for vertical support. c/w anchor bolts. Mass = 16kg/each.	4,928 kg	6.00	29,600	
- 19mm douglas fir slat siding	1,173 m2	150.00	176,000	
- Vertical J-channels & horizontal Z-griits	1,173 m2	40.00	46,900	
- 16mm (5/8") unsanded fir plywood	1,173 m2	21.00	24,600	
- 200mm steel studs 400mm o.c.	586 m2	75.00	44,000	
- 200mm roxul cavity rock semi-rigid wool insulation	586 m2	70.00	41,000	
- Peel and stick air/vapour barrier	586 m2	20.00	11,700	
- Flashing, sealing, and caulking.	1,173 m2	25.00	29,300	
3 Allowance for expansion joints at roof parapet. Four locations.	9 m	300.00	2,700	
A35 Projections **TOTAL : $**	1,087 m2	644.99	701,100	

B1 PARTITIONS & DOORS	Quantity	Unit rate	Amount	Remarks
B11 Partitions				
1 P1 shaft wall. Allowance.	2,000 m2	100.00	200,000	
2 P2 corridor / common walls	1 sum	5,831,100.00	5,831,100	
- L2 to L12. Allow 935m per floor.	33,940 m2	150.00	5,091,000	
- L1. Allow 1,495m.	4,934 m2	150.00	740,100	
3 P3 interior unit walls	1 sum	4,605,200.00	4,605,200	
- Unit A = 150m2. Allow 20x similar per floor.	33,000 m2	75.00	2,475,000	
- Unit B = 105m2. Allow 12x similar per floor.	13,860 m2	75.00	1,039,500	
- Unit C = 145m2. Allow 2x similar per floor.	3,190 m2	75.00	239,300	
- Unit D = 172m2. Allow 6x similar per floor.	11,352 m2	75.00	851,400	
4 Tempered glazing for showers. 12mm thick. Allow 2x3m per unit.	440 no.	3,600.00	1,584,000	
5 Allowance for firestopping, sealing, and caulking.	102,916 m2	5.00	514,600	
6 Allowance for wood blocking, backing, and rough carpentry.	102,916 m2	7.00	720,400	
B11 Partitions **TOTAL : $**	102,916 m2	130.74	13,455,300	

B1 PARTITIONS & DOORS	Quantity	Unit rate	Amount	Remarks
B12 Doors				
1 Allowance for wood doors c/w frame and hardware.	5,700 no.	2,000.00	11,400,000	
2 Allowance for hardware upgrades.	5,700 no.	500.00	2,850,000	
B12 Doors **TOTAL : $**	5,700 No	2,500.00	14,250,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B21 Floor Finishes				
1 Lightweight concrete topping for structure & acoustics. 50mm thick.	72,000 m2	15.00	1,080,000	
2 Wood flooring (ash or maple) c/w wood baseboard.	51,000 m2	100.00	5,100,000	
3 Coloured body porecelain tile. 300x600mm.	21,000 m2	125.00	2,625,000	
B21 Floor Finishes **TOTAL : $**	72,000 m2	122.29	8,805,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Exposed structure. No ceiling finish.		Nil		
2 Paint exposed piping & ductwork.	24,000 m2	45.00	1,080,000	
B22 Ceiling Finishes **TOTAL : $**	24,000 m2	45.00	1,080,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Paint finish. Allowance for interior face of exterior wall.	10,900 m2	20.00	218,000	
2 Paint finish. Allowance for interior partitions.	205,832 m2	20.00	4,116,600	
3 Ceramic tile. 3 walls in shower.	5,500 m2	150.00	825,000	
4 Kitchen backsplash. Back painted glass.	1,300 m2	195.00	253,500	
- Paint finish.	1,300 m2	20.00	26,000	
- Float glass, 5mm.	1,300 m2	175.00	227,500	
B23 Wall Finishes **TOTAL : $**	223,532 m2	24.22	5,413,100	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B31 Fittings & Fixtures				
Metals				
1 Exterior metal louvres. Architectural grade. 3x5m.	5 no.	7,500.00	37,500	
2 Recessed entry mat s/s.	150 m2	300.00	45,000	
Millwork				
3 W/C vanity millwork c/w mirror allowance.	660 no.	3,500.00	2,310,000	
4 Closet millwork allowance.	660 no.	3,000.00	1,980,000	
5 Allowance for reception desk millwork.	5 no.	8,000.00	40,000	
6 Allowance for misc. millwork items. Allow 10K per 2,000 m2.	1 sum	360,000.00	360,000	
7 Allowance for mailboxes.	1 sum	105,300.00	105,300	
- Parcel type. Allow 20 per core.	20 no.	277.00	5,500	
- Apartment type. Front Loading.	440 no.	170.00	74,800	
- Collection box, stainless steel.	5 no.	5,000.00	25,000	
Specialties				
8 Washroom accessories.	600 sets	2,500.00	1,500,000	
9 Janitor closet. Allow 11 for upper floors & 5 on ground floor.	16 no.	1,500.00	24,000	
10 Magnetic glass white board in common mail area.	5 no.	1,000.00	5,000	
11 Allowance for window blinds c/w manual system and solar shade fabric.	13,895 m2	200.00	2,779,000	
Movable Furniture				
12 Furniture and seating, not included.		Nil		
13 Planters and potted plants, not included.		Nil		
B31 Fittings & Fixtures **TOTAL : $**	72,000 m2	127.58	9,185,800	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B32 Equipment				
Appliances				
1 Allowance for kitchen appliances. Refrigerator, range c/w oven, dishwasher, range hood s/s. 440 units + 33 lounge spaces.	473 no.	6,700.00	3,169,100	
2 Allowance for washer and dryers.	440 no.	3,000.00	1,320,000	
Miscellaneous				
3 Waste management chute system.	1 sum	195,000.00	195,000	
- Chute system c/w ducting and s/s chute doors.	5 no.	12,000.00	60,000	
- Tri-sorter waste management equipment system.	5 no.	24,000.00	120,000	
- Garbage Waste Bin REL.	5 no.	1,000.00	5,000	
- Organic Waste Bin REL.	5 no.	1,000.00	5,000	
- Recycle Waste Bin REL.	5 no.	1,000.00	5,000	
4 Window washing system, allowance.	1 sum	200,000.00	200,000	
5 Commercial equipment, not included.		Nil		
B32 Equipment **TOTAL : $**	72,000 m2	67.83	4,884,100	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B33 Elevators				
1 Elevator 1: Passenger. Approximate size: 2.1x2.6m. Spec: 12 stops, 55m (pit to roof), hydraulic, 14,000 lbs. Includes cab allowance of $15K.	5 no.	375,000.00	1,875,000	
2 Elevator 2: Service. Approximate size: 2.7x3.6m. Spec: 12 stops, 55m (pit to roof), hydraulic, 14,000 lbs. Includes cab allowance of $15K.	5 no.	500,000.00	2,500,000	
B33 Elevators **TOTAL : $**	10 No	437,500.00	4,375,000	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C11 Plumbing & Drainage				
Apartments				
1 Plumbing c/w low flow fixtures, DCW, DHW, drainage & ven piping & connections.	440 units	14,700.00	6,468,000	
- Kitchen sink, double	440 no.	3,200.00	1,408,000	
- Dishwasher connection. Appliance cost included in B3 Equipment.	440 no.	200.00	88,000	
- Connection for washer. Appliance cost included in B3 Equipment.	440 no.	500.00	220,000	
- Shower	440 no.	3,500.00	1,540,000	
- Water closet, floor mounted with flush tank	660 no.	2,600.00	1,716,000	
- Bathroom sink, single	440 no.	2,000.00	880,000	
- Bathroom sink, double	220 no.	2,800.00	616,000	
2 Gas connections	440 no.	2,250.00	990,000	
Common Areas & Base Building				
3 Plumbing c/w low flow fixtures, DCW, DHW, drainage & vent piping, connections.	1 sum	107,000.00	107,000	
- Exterior hose bibs	10 no.	500.00	5,000	
- Janitor sink, precast floor mounted, faucet with hose set.	16 no.	2,000.00	32,000	
- Allowance for plumbing fixtures not yet identified.	12 no.	2,400.00	28,800	
- Water closet c/w electronic flush valve, wall mounted.	8 no.	3,200.00	25,600	
- Lavatory c/w electronic 'no touch' valve.	6 no.	2,600.00	15,600	
4 Gas connections in lounge areas	33 no.	2,250.00	74,300	
5 Gas connections / rough in for future commercial spaces on level 1	7 no.	2,250.00	15,800	
6 Gas main piping, connections to HVAC equipment etc.	1 sum	20,000.00	20,000	
7 Storm drainage	6,000 m2	7.00	42,000	
- Allow for roof drains & RWLs	6,000 m2	7.00	42,000	
		Carried Forward :	7,717,100	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C11 Plumbing & Drainage (Continued)		**Brought Forward :**	7,717,100	
Allowances				
8 Allowance for seismic requirements.	72,000 m2	0.30	21,600	
9 P&D miscellaneous such as start-up, cleaning, drawing, tagging, identification, testing, verification.	72,000 m2	2.00	144,000	
C11 Plumbing & Drainage **TOTAL : $**	72,000 m2	109.48	7,882,700	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C12 Fire Protection				
1 Allowance for fire water entry assembly, main header, fire pump, siamese connections etc.	1 sum	100,000.00	100,000	
2 Allowance for sprinkler system	72,000 m2	40.00	2,880,000	
3 Allowance for fire extinguishers etc.	1 sum	20,000.00	20,000	
4 Allowance for seismic requirements.	72,000 m2	0.80	57,600	
5 Allowance for FP misc. such as start up, cleaning, dwgs, tagging, identification, testing, etc.	72,000 m2	1.50	108,000	
C12 Fire Protection **TOTAL : $**	72,000 m2	43.97	3,165,600	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C13 HVAC				
1 Allowance for heat generation & distribution to apartment units and common areas	1 sum	800,000.00	800,000	
Apartments				
2 Allowance for radiant floor heating system c/w PEX tubing, PEX fittings, PEX tools, manifolds, controls, and panels.	72,000 m2	35.00	2,520,000	
3 Allowance for mini split air conditioner c/w remote. Allow 3 zones per apartment.	450 no.	6,500.00	2,925,000	
4 Allowance for ventilation and exhaust requirements	72,000 m2	50.00	3,600,000	
Common Areas & Base Building				
5 Allowance for heating & cooling on level 1 in common areas and commercial areas.	6,000 m2	80.00	480,000	
6 Allowance for heating & cooling in all common areas (i.e. stairs & corridors).	9,900 m2	40.00	396,000	
7 Allowance for ventilation & exhaust on level 1 in common areas and commercial areas.	6,000 m2	140.00	840,000	
8 Allowance for ventilation & exhaust in all common areas (i.e. stairs & corridors).	9,900 m2	35.00	346,500	
9 Allow for seismic requirements, silencers, vibration isolations, etc.	72,000 m2	5.00	360,000	
10 HVAC misc. such as start-up, cleaning, drawings, tagging, identification, etc.	72,000 m2	2.40	172,800	
11 Testing, adjusting, balancing c/w commissioning.	72,000 m2	3.50	252,000	
C13 HVAC **TOTAL : $**	72,000 m2	176.28	12,692,300	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C14 Controls				
1 Allow for DDC controls	72,000 m2	38.00	2,736,000	
C14 Controls **TOTAL : $**	72,000 m2	38.00	2,736,000	

C2 ELECTRICAL	Quantity	Unit rate	Amount	Remarks
C21 Service & Distribution				
1 Service & distribution	72,000 m2	40.00	2,880,000	
C21 Service & Distribution **TOTAL : $**	72,000 m2	40.00	2,880,000	

C2 ELECTRICAL	Quantity	Unit rate	Amount	Remarks
C22 Lighting, Devices & Heating				
1 Supply, install & wire light fixtures - units	440 units	2,500.00	1,100,000	
2 Supply, install & wire light fixtures - other areas	56,000 m2	40.00	2,240,000	
3 Exit & emergency lighting	72,000 m2	2.00	144,000	
4 Lighting controls	72,000 m2	5.00	360,000	
5 Power outlets, devices, and connections.	72,000 m2	20.00	1,440,000	
6 Connections to mechancial equipment	72,000 m2	8.00	576,000	
C22 Lighting, Devices & Heating **TOTAL : $**	72,000 m2	81.39	5,860,000	

C2 ELECTRICAL		Quantity	Unit rate	Amount	Remarks
C23 Systems & Ancillaries					
1	Fire alarm system	72,000 m2	18.00	1,296,000	
2	Communication system	72,000 m2	20.00	1,440,000	
3	CATV system	1 sum	100,000.00	100,000	
4	Other miscellaneous systems		allow	1,500,000	
5	Security systems - not included		nil.		
C23 Systems & Ancillaries	**TOTAL : $**	72,000 m2	60.22	4,336,000	

D1 SITE WORK		Quantity	Unit rate	Amount	Remarks
D11 Site Development					
Costs have only been inserted at Sub-Element level					
D11 Site Development	**TOTAL : $**	26,200 m2	150.00	3,930,000	

D1 SITE WORK	Quantity	Unit rate	Amount	Remarks
D12 Mechanical Site Services Costs have only been inserted at Sub-Element level				
D12 Mechanical Site Services **TOTAL : $**	26,200 m2	25.00	655,000	

D1 SITE WORK		Quantity	Unit rate	Amount	Remarks
D13 Electrical Site Services					
Costs have only been inserted at Sub-Element level					
D13 Electrical Site Services	**TOTAL : $**	26,200 m2	20.00	524,000	

Z2 ALLOWANCES	Quantity	Unit rate	Amount	Remarks
Z24 Cash Allowance				
1 Interior signange allowance. Allow 40k per floor.	12 no.	40,000.00	480,000	
2 Exterior signage allowance. Allow 20k per entrance.	5 no.	20,000.00	100,000	
3 Artwork, Lobby. Allow 5k per lobby.	5 no.	5,000.00	25,000	
Z24 Cash Allowance **TOTAL : $**	1 sum	605,000.00	605,000	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Residential: Mass Timber Structure**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 60,000 m2

Element		Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
			Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A2 STRUCTURE						15,920,200		265.34	88.3
A21	Lowest Floor Construction				0		0.00		
A22	Upper Floor Construction	0.860	51,750 m2	253.00	13,093,300		218.22		
A23	Roof Construction	0.100	6,000 m2	247.00	1,483,900		24.73		
A24	Tower Cranes	0.000	1 sum	1,343,000.00	1,343,000		22.38		
NET BUILDING COST - INCLUDING SITE					**$**	**15,920,200**		265.34	88.3
Z1 GENERAL REQUIREMENTS & FEE						2,117,400		35.29	11.7
Z11	General Requirements		10.0 %		1,592,000		26.53		
Z12	Fee		3.0 %		525,400		8.76		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES					**$**	**18,037,600**		300.63	100.0
Z2 ALLOWANCES						2,795,900		46.60	
Z21	Design & Pricing Allowance		10.0 %		1,803,800		30.06		
Z22	Escalation Allowance		0.0 %		0		0.00		
Z23	Construction Allowance		5.0 %		992,100		16.54		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES					**$**	**20,833,500**		347.23	
VALUE ADDED TAX (GST/HST)						0		0.00	
	Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE					**$**	**20,833,500**	**$**	**347.23**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Mass Timber Structure				
1 Connection between mass timbre structure and concrete podium structure, level 2.	534 no.	186.50	99,600	
- Steel plate 265x265x25mm. 350mm thick.	7,476 kg	5.00	37,400	
- 19mm DIA. cast in place anchor bolts c/w nuts washer nut at base.	2,136 no.	15.00	32,000	
- Allowance for misc.	1 sum	3,500.00	3,500	
- Allowance for labour.	534 no.	50.00	26,700	
2 Flate plate slabs. 2-way CLT panels.	51,750 m2	167.80	8,683,900	
- Pre-fab CLT (2-way) panels. 175mm thick, 12m long, J-grade SPF, non-visual. 1440 panels.	51,750 m2	165.00	8,538,800	
- Labour allowance. Approximately 6 panels per hour.	1,440 no.	40.00	57,600	
- 140x25mm thick plywood spine screwed to each panel E/W direction	30,000 m	2.50	75,000	
- 140x25mm thick plywood spine screwed to each panel N/S direction	5,000 m	2.50	12,500	
3 Allowance for expansion joint. Two locations. Allow 48m/floor.	432 m	300.00	129,600	
4 Columns. GLT c/w steel point connections. 534 per floor.	4,806 no.	869.80	4,180,200	
- pre-fab GLT columns. section: 265x265mm. height: 3m.	1,009 m3	4,000.00	4,036,000	
- Labour allowance. Approximately 8 columns installed per hour.	4,806 no.	30.00	144,200	
- pre-fab hollow structural steel point connections		incl.		
A22 Upper Floor Construction **TOTAL : $**	51,750 m2	253.01	13,093,300	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Mass Timbre Structure.				
1 Flat plate slab. 2-way CLT panels.	6,000 m2	167.60	1,005,500	
- Pre-fab CLT (2-way) panels. 175mm thick, 12m long, J-Grade SPF, non-visual. 167 panels.	6,000 m2	165.00	990,000	
- Labour allowance. Approximately 6 panels installed per hour.	167 no.	40.00	6,700	
- 140x25mm thick plywood spine screwed to each panel E/W direction	3,000 m	2.50	7,500	
- 140x25mm thick plywood spine screwed to each panel N/S direction	500 m	2.50	1,300	
2 Allowance for expansion joint. Two locations. Allow 48m/floor.	48 m	300.00	14,400	
3 Columns. GLT c/w steel point connections. 534 per floor.	534 no.	868.90	464,000	
- Pre-fab GLT columns. Section: 265x265mm. Height: 3m.	112 m3	4,000.00	448,000	
- Labour allowance. Approximately 8 columns installed per hour.	534 no.	30.00	16,000	
- Pre-fab hollow structural steel point connections.		incl.		
A23 Roof Construction **TOTAL : $**	6,000 m2	247.32	1,483,900	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	671,500.00	671,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	10 No.	50,000.00	500,000	
2 Tower Crane #2	1 Sum	671,500.00	671,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	10 No.	50,000.00	500,000	
A24 Tower Cranes **TOTAL : $**	1 sum	1,343,000.00	1,343,000	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Residential: Mass Timber Encapsulation**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 60,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
B INTERIORS		60,000 m2			12,209,200		203.49	88.3
B2 FINISHES					12,209,200		203.49	88.3
B22 Ceiling Finishes	1.060	63,500 m2	145.00	9,207,500		153.46		
B23 Wall Finishes	0.380	22,913 m2	131.00	3,001,700		50.03		
NET BUILDING COST - INCLUDING SITE				**$**	**12,209,200**		203.49	88.3
Z1 GENERAL REQUIREMENTS & FEE					1,623,800		27.06	11.7
Z11 General Requirements		10.0 %		1,220,900		20.35		
Z12 Fee		3.0 %		402,900		6.72		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**13,833,000**		230.55	100.0
Z2 ALLOWANCES					2,144,100		35.74	
Z21 Design & Pricing Allowance		10.0 %		1,383,300		23.06		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		760,800		12.68		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**15,977,100**		266.29	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**15,977,100**	**$**	**266.29**	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Encapsulation of mass timber structure. Underside of CLT floor slabs.	57,500 m2	125.00	7,187,500	
- 16mm gypsum board, type X, moisture resistant	57,500 m2	35.00	2,012,500	
- 38mm steel hat track @ 400mm o.c.	57,500 m2	11.00	632,500	
- 19mm steel resilient furring bar @ 400 o.c.	57,500 m2	8.00	460,000	
- 16mm gypsum board, type x	57,500 m2	26.00	1,495,000	
- paint finish	57,500 m2	45.00	2,587,500	
2 Encapsulation of mass timber structure. Underside of CLT roof slab.	6,000 m2	125.00	750,000	
- 16mm gypsum board, type X, moisture resistant	6,000 m2	35.00	210,000	
- 38mm steel hat track @ 400mm o.c.	6,000 m2	11.00	66,000	
- 19mm steel resilient furring bar @ 400 o.c.	6,000 m2	8.00	48,000	
- 16mm gypsum board, type x	6,000 m2	26.00	156,000	
- paint finish	6,000 m2	45.00	270,000	
3 Allowance for firestopping, sealing, caulking, misc.	63,500 m2	20.00	1,270,000	
B22 Ceiling Finishes **TOTAL : $**	63,500 m2	145.00	9,207,500	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Encapsulation of mass timber structure. GLT columns slab to slab.	20,830 m2	111.00	2,312,100	
- 16mm gypsum board, type X, moisture resistant	20,830 m2	40.00	833,200	
- 38mm steel hat track @ 400mm o.c.	20,830 m2	11.00	229,100	
- 19mm steel resilient furring bar @ 400 o.c.	20,830 m2	8.00	166,600	
- 16mm gypsum board, type x	20,830 m2	32.00	666,600	
- paint finish	20,830 m2	20.00	416,600	
2 Encapsulation of mass timber structure. GLT columns (roof structure).	2,083 m2	111.00	231,300	
- 16mm gypsum board, type X, moisture resistant	2,083 m2	40.00	83,300	
- 38mm steel hat track @ 400mm o.c.	2,083 m2	11.00	22,900	
- 19mm steel resilient furring bar @ 400 o.c.	2,083 m2	8.00	16,700	
- 16mm gypsum board, type x	2,083 m2	32.00	66,700	
- paint finish	2,083 m2	20.00	41,700	
3 Allowance for firestopping, sealing, caulking, misc.	22,913 m2	20.00	458,300	
B23 Wall Finishes **TOTAL : $**	22,913 m2	131.00	3,001,700	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Residential: Concrete Structure**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 60,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A2 STRUCTURE					20,089,200		334.82	88.3
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction	0.860	51,750 m2	287.00	14,859,200		247.65		
A23 Roof Construction	0.100	6,000 m2	311.00	1,865,500		31.09		
A24 Tower Cranes	0.000	1 sum	3,364,500.00	3,364,500		56.08		
NET BUILDING COST - INCLUDING SITE				**$**	**20,089,200**		334.82	88.3
Z1 GENERAL REQUIREMENTS & FEE					2,671,800		44.53	11.7
Z11 General Requirements		10.0 %		2,008,900		33.48		
Z12 Fee		3.0 %		662,900		11.05		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**22,761,000**		379.35	100.0
Z2 ALLOWANCES					3,528,000		58.80	
Z21 Design & Pricing Allowance		10.0 %		2,276,100		37.94		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		1,251,900		20.87		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**26,289,000**		438.15	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**26,289,000**	**$**	**438.15**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Reinforced Concrete Structure				
1 Flat plate slabs. 2-way reinforced concrete. Thickness = 250mm. Rebar = 100kg/m3.	51,750 m2	228.00	11,799,100	
- Concrete supply	12,938 m3	163.00	2,108,900	
- Concrete placing	12,938 m3	35.00	452,800	
- Rebar allowance, 100kg/m3	1,293,750 kg	2.10	2,716,900	
- Screed/cure finish	51,750 m2	10.00	517,500	
- Isolation/control joints	51,750 m2	6.00	310,500	
- Formwork allowance	51,750 m2	110.00	5,692,500	
2 Allowance for expansion joint. Two locations. Allow 48m/floor.	432 m	300.00	129,600	
3 Columns. 300x300mm. 534 per floor. Reinforced concrete.	4,806 no.	609.80	2,930,500	
- Concrete supply	1,406 m3	163.00	229,200	
- Concrete placing	1,406 m3	35.00	49,200	
- Rebar allowance, 200kg/m3	281,151 kg	2.10	590,400	
- Formwork allowance	18,743 m2	110.00	2,061,700	
A22 Upper Floor Construction **TOTAL : $**	51,750 m2	287.13	14,859,200	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Reinforced Concrete Structure.				
1 Flat plate slabs. 2-way reinforced concrete. Thickness = 250mm. Rebar = 150kg/m3.	6,000 m2	254.30	1,525,500	
- Concrete supply	1,500 m3	163.00	244,500	
- Concrete placing	1,500 m3	35.00	52,500	
- Rebar allowance, 150kg/m3.	225,000 kg	2.10	472,500	
- Screed/cure finish	6,000 m2	10.00	60,000	
- Isolation/control joints	6,000 m2	6.00	36,000	
- Formwork allowance	6,000 m2	110.00	660,000	
2 Allowance for expansion joint. Two locations. Allow 48m/floor.	48 m	300.00	14,400	
3 Columns. 300x300mm. 534 per floor. Reinforced concrete.	534 no.	609.70	325,600	
- Concrete supply	156 m3	163.00	25,400	
- Concrete placing	156 m3	35.00	5,500	
- Rebar allowance, 200kg/m3	31,239 kg	2.10	65,600	
- Formwork allowance	2,083 m2	110.00	229,100	
A23 Roof Construction **TOTAL : $**	6,000 m2	310.92	1,865,500	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	19 no.	50,000.00	950,000	
2 Tower Crane #2	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	19 no.	50,000.00	950,000	
3 Tower Crane #3	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	19 no.	50,000.00	950,000	
A24 Tower Cranes **TOTAL : $**	1 sum	3,364,500.00	3,364,500	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Residential: Steel Structure**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 60,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A2 STRUCTURE					18,327,800		305.46	48.2
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction	0.860	51,750 m2	270.00	13,946,900		232.45		
A23 Roof Construction	0.100	6,000 m2	269.00	1,616,400		26.94		
A24 Tower Cranes	0.000	1 sum	2,764,500.00	2,764,500		46.08		
B2 FINISHES					15,244,800		254.08	40.1
B22 Ceiling Finishes	1.060	63,500 m2	191.00	12,128,500		202.14		
B23 Wall Finishes	0.380	22,913 m2	136.00	3,116,300		51.94		
NET BUILDING COST - INCLUDING SITE				**$**	**33,572,600**		559.54	88.3
Z1 GENERAL REQUIREMENTS & FEE					4,465,200		74.42	11.7
Z11 General Requirements		10.0 %		3,357,300		55.96		
Z12 Fee		3.0 %		1,107,900		18.47		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**38,037,800**		633.96	100.0
Z2 ALLOWANCES					7,892,900		131.55	
Z21 Design & Pricing Allowance		15.0 %		5,705,700		95.10		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		2,187,200		36.45		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**45,930,700**		765.51	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**45,930,700**	**$**	**765.51**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Steel Structure.				
1 Concrete topping on metal deck. Note concrete topping incl. elesewhere.	51,750 m2	45.00	2,328,800	
- Concrete supply		incl.		
- Concrete placing		incl.		
- Rebar, WWM		incl.		
- Screed / cure finish		incl.		
- Isolation / control joints		incl.		
- 38mm galvanized steel deck	51,750 m2	45.00	2,328,800	
2 Allowance for expansion joint. Two locations. Allow 48m/floor.	432 m	300.00	129,600	
3 Structural support to above. Steel structure.	51,750 m2	222.00	11,488,500	
- Steel beams, columns, OWSJ etc. Allow 40kg/m2.	2,070,000 kg	5.00	10,350,000	
- Miscellaneous details and connections.	207,000 kg	5.50	1,138,500	
A22 Upper Floor Construction **TOTAL : $**	51,750 m2	269.51	13,946,900	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Steel Structure				
1 Concrete topping on metal deck. Note concrete topping incl. elesewhere.	6,000 m2	45.00	270,000	
- Concrete supply		incl.		
- Concrete placing		incl.		
- Rebar, WWM		incl.		
- Screed / cure finish		incl.		
- Isolation / control joints		incl.		
- 38mm galvanized steel deck	6,000 m2	45.00	270,000	
2 Allowance for expansion joint. Two locations. Allow 48m/floor.	48 m	300.00	14,400	
3 Structural support to above. Steel structure.	6,000 m2	222.00	1,332,000	
- Steel beams, columns, OWSJ etc. Allow 40kg/m2.	240,000 kg	5.00	1,200,000	
- Miscellaneous details and connections.	24,000 kg	5.50	132,000	
A23 Roof Construction **TOTAL : $**	6,000 m2	269.40	1,616,400	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	921,500.00	921,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	15 no.	50,000.00	750,000	
2 Tower Crane #2	1 Sum	921,500.00	921,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	15 no.	50,000.00	750,000	
3 Tower Crane #3	1 Sum	921,500.00	921,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	15 no.	50,000.00	750,000	
A24 Tower Cranes **TOTAL : $**	1 sum	2,764,500.00	2,764,500	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Encapsulation of steel structure. Underside of floor slabs.	57,500 m2	116.00	6,670,000	
- 38mm steel hat track @ 400mm o.c.	57,500 m2	11.00	632,500	
- 19mm steel resilient furring bar @ 400 o.c.	57,500 m2	8.00	460,000	
- 16mm gypsum board, type X	57,500 m2	26.00	1,495,000	
- 16mm gypsum board, type X	57,500 m2	26.00	1,495,000	
- paint finish	57,500 m2	45.00	2,587,500	
2 Encapsulation of steel structure. Underside of roof slab.	6,000 m2	116.00	696,000	
- 38mm steel hat track @ 400mm o.c.	6,000 m2	11.00	66,000	
- 19mm steel resilient furring bar @ 400 o.c.	6,000 m2	8.00	48,000	
- 16mm gypsum board, type X	6,000 m2	26.00	156,000	
- 16mm gypsum board, type X	6,000 m2	26.00	156,000	
- paint finish	6,000 m2	45.00	270,000	
3 Allowance for acoustics.	63,500 m2	55.00	3,492,500	
- 152mm mineral wool insulation	63,500 m2	55.00	3,492,500	
4 Allowance for firestopping, sealing, caulking, misc.	63,500 m2	20.00	1,270,000	
B22 Ceiling Finishes **TOTAL : $**	63,500 m2	191.00	12,128,500	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Encapsulation of steel columns. Slab to slab.	20,830 m2	116.00	2,416,300	
- 38mm steel hat track @ 400mm o.c.	20,830 m2	11.00	229,100	
- 19mm steel resilient furring bar @ 400 o.c.	20,830 m2	8.00	166,600	
- 16mm gypsum board, type X	20,830 m2	26.00	541,600	
- 16mm gypsum board, type X	20,830 m2	26.00	541,600	
- paint finish	20,830 m2	45.00	937,400	
2 Encapsulation of steel columns. Slab to slab (roof structure).	2,083 m2	116.00	241,700	
- 38mm steel hat track @ 400mm o.c.	2,083 m2	11.00	22,900	
- 19mm steel resilient furring bar @ 400 o.c.	2,083 m2	8.00	16,700	
- 16mm gypsum board, type X	2,083 m2	26.00	54,200	
- 16mm gypsum board, type X	2,083 m2	26.00	54,200	
- paint finish	2,083 m2	45.00	93,700	
3 Allowance for firestopping, sealing, caulking, misc.	22,913 m2	20.00	458,300	
B23 Wall Finishes **TOTAL : $**	22,913 m2	136.01	3,116,300	

Appendix E
Detailed Cost Comparison & Elemental Cost Estimates
Office Building

Project	: **EMTC - Cost Comparison**		Report date : 22 Sep 2017
	: **Commercial: Common Elements**		Page No. : 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**	Bldg Type : 815
Owner	: **National Research Council Canada**		C.T. Index : 0.0
Consultant	: **Llamaw Studio Inc.**		GFA : 86,400 m2

Element	Ratio to GFA	Elemental Cost Quantity	Elemental Cost Unit rate	Elemental Amount Sub-Total	Elemental Amount Total	Rate per m2 Sub-Total	Rate per m2 Total	%
A SHELL		86,400 m2			33,118,900		383.32	25.3
A1 SUBSTRUCTURE					4,277,900		49.51	3.3
A11 Foundations	0.080	7,200 m2	591.00	4,257,900		49.28		
A12 Basement Excavation				0		0.00		
A13 Special Conditions	0.000	1 Sum	20,000.00	20,000		0.23		
A2 STRUCTURE					10,162,000		117.62	7.8
A21 Lowest Floor Construction	0.080	7,200 m2	158.00	1,139,400		13.19		
A22 Upper Floor Construction	0.080	7,200 m2	1,253.00	9,022,600		104.43		
A23 Roof Construction				0		0.00		
A3 EXTERIOR ENCLOSURE					18,679,000		216.19	14.3
A31 Walls Below Grade				0		0.00		
A32 Walls Above Grade	0.210	18,200 m2	927.00	16,862,900		195.17		
A33 Windows & Entrances	0.000	26 no.	6,977.00	181,400		2.10		
A34 Roof Coverings	0.080	7,200 m2	173.00	1,248,800		14.45		
A35 Projections	0.010	1,087 m2	355.00	385,900		4.47		
B INTERIORS		86,400 m2			28,951,200		335.08	22.1
B1 PARTITIONS & DOORS					5,188,500		60.05	4.0
B11 Partitions	0.250	21,950 m2	134.00	2,938,500		34.01		
B12 Doors	0.010	900 No	2,500.00	2,250,000		26.04		
B2 FINISHES					12,279,700		142.13	9.4
B21 Floor Finishes	1.000	86,400 m2	117.00	10,116,000		117.08		
B22 Ceiling Finishes	0.350	30,000 m2	45.00	1,350,000		15.63		
B23 Wall Finishes	0.470	40,685 m2	20.00	813,700		9.42		
B3 FITTINGS & EQUIPMENT					11,483,000		132.91	8.8
B31 Fittings & Fixtures	1.000	86,400 m2	54.00	4,705,000		54.46		
B32 Equipment	1.000	86,400 m2	3.00	278,000		3.22		
B33 Elevators	0.000	16 No	406,250.00	6,500,000		75.23		
B34 Escalators				0		0.00		
C SERVICES		86,400 m2			48,213,700		558.03	36.9
C1 MECHANICAL					33,394,500		386.51	25.5
C11 Plumbing & Drainage	1.000	86,400 m2	48.00	4,130,800		47.81		
C12 Fire Protection	1.000	86,400 m2	44.00	3,774,700		43.69		
C13 HVAC	1.000	86,400 m2	257.00	22,205,800		257.01		
C14 Controls	1.000	86,400 m2	38.00	3,283,200		38.00		
C2 ELECTRICAL					14,819,200		171.52	11.3
C21 Service & Distribution	1.000	86,400 m2	40.00	3,456,000		40.00		
C22 Lighting, Devices & Heating	1.000	86,400 m2	75.00	6,480,000		75.00		
C23 Systems & Ancillaries	1.000	86,400 m2	57.00	4,883,200		56.52		
NET BUILDING COST - EXCLUDING SITE				**$**	**110,283,800**		1,276.43	84.4
D SITE & ANCILLARY WORK		86,400 m2			5,109,000		59.13	3.9
D1 SITE WORK					5,109,000		59.13	3.9
D11 Site Development	0.300	26,200 m2	150.00	3,930,000		45.49		
D12 Mechanical Site Services	0.300	26,200 m2	25.00	655,000		7.58		
D13 Electrical Site Services	0.300	26,200 m2	20.00	524,000		6.06		
D2 ANCILLARY WORK					0		0.00	0.0
D21 Demolitions				0		0.00		
D22 Alterations				0		0.00		
NET BUILDING COST - INCLUDING SITE				**$**	**115,392,800**		1,335.56	88.3
Z1 GENERAL REQUIREMENTS & FEE					15,347,300		177.63	11.7
Z11 General Requirements		10.0 %		11,539,300		133.56		
Z12 Fee		3.0 %		3,808,000		44.07		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**130,740,100**		1,513.20	100.0
Z2 ALLOWANCES					20,674,700		239.29	
Z21 Design & Pricing Allowance		10.0 %		13,074,000		151.32		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		7,190,700		83.23		
Z24 Cash Allowance		1 sum	410,000.00	410,000		4.75		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**151,414,800**		1,752.49	
_ **VALUE ADDED TAX (GST/HST)**					0		0.00	
__ Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**151,414,800**	**$**	**1,752.49**	

A1 SUBSTRUCTURE	Quantity	Unit rate	Amount	Remarks
A11 Foundations				
Footings. Bearing on rock / undisturbed soil.				
1 Strip footing. Reinforced concrete. 600x300mm.	420 m	123.60	51,900	
- Concrete supply	76 m3	169.00	12,800	
- Concrete placing	76 m3	35.00	2,700	
- Rebar allowance, 55kg/m3	4,158 kg	2.10	8,700	
- Formwork allowance, sides	252 m2	110.00	27,700	
2 Pad footing. Reinforced concrete. 2800x2800x700mm.	592 no.	2,123.00	1,256,800	
- Concrete supply	3,249 m3	169.00	549,100	
- Concrete placing	3,249 m3	35.00	113,700	
- Rebar allowance, 55kg/m3	178,689 m3	2.10	375,200	
- Formwork allowance, sides	1,989 m2	110.00	218,800	
3 Slab below elevator & stair cores. Reinforced concrete. 1.5m thick.	227 m2	892.10	202,500	
- Concrete supply	341 m3	169.00	57,600	
- Concrete placing	341 m3	35.00	11,900	
- Rebar allowance, 55kg/m3	18,728 m3	2.10	39,300	
- Formwork allowance, sides	852 m2	110.00	93,700	
Walls & piers. Allow 3m.				
4 Foundation wall. Reinforced concrete. 250mm thick.	420 m	899.50	377,800	
- Concrete supply	315 m3	169.00	53,200	
- Concrete placing	315 m3	35.00	11,000	
- Rebar allowance, 55kg/m3	17,325 kg	2.10	36,400	
- Formwork allowance, sides	2,520 m2	110.00	277,200	
5 Pier. Reinforced concrete. 265x265mm.	592 no.	501.40	296,800	
- Concrete supply	416 m3	169.00	70,300	
- Concrete placing	416 m3	35.00	14,600	
- Rebar allowance, 55kg/m3	2,287 m3	2.10	4,800	
- Formwork allowance, sides	1,883 m2	110.00	207,100	
		Carried Forward :	2,185,800	

A1 SUBSTRUCTURE		Quantity	Unit rate	Amount	Remarks
A11 Foundations (Continued)			**Brought Forward :**	2,185,800	
Allowances / Other					
6 Clearing & grubbing.		7,200 m2	15.00	108,000	
7 Perimeter drain c/w filter socket and granular cover.		420 m	35.00	14,700	
8 Damproofing and rigid insulation to perimeter foundation wall.		1,260 m2	60.00	75,600	
9 Allowance for expansion joint at foundation level. Two locations.		90 m	300.00	27,000	
10 Backfill - granular A (19mm) compacted material. Allow 300mm.		2,160 m3	45.00	97,200	
11 Backfill - granular B (25-50mm) compacted material. Allowance.		19,440 m3	40.00	777,600	
12 Under slab drainage, sump pumps / pits.		7,200 m2	15.00	108,000	
13 Excavation. Allow a depth of 3m.		21,600 m3	40.00	864,000	
A11 Foundations	**TOTAL : $**	7,200 m2	591.38	4,257,900	

A1 SUBSTRUCTURE	Quantity	Unit rate	Amount	Remarks
A13 Special Conditions				
1 Dewatering during excavation.	1 sum	20,000.00	20,000	
2 Contaminated soil removal, not included.		Nil		
3 Rock excavation, not included.		Nil		
A13 Special Conditions **TOTAL : $**	1 Sum	20,000.00	20,000	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A21 Lowest Floor Construction				
1 Slab on grade. Thickness = 250mm. Rebar = 100kg/m3.	7,200 m2	94.50	680,400	
- Concrete supply	1,800 m3	156.00	280,800	
- Concrete placing	1,800 m3	35.00	63,000	
- Rebar allowance, WWM	7,200 m2	12.00	86,400	
- Screed / cure finish	7,200 m2	10.00	72,000	
- Isolation / control joints	7,200 m2	6.00	43,200	
- Formwork allowance, staggered pour	1 sum	135,000.00	135,000	
2 Allowance for insulation below grade. 75mm rigid insulation below slab on grade.	7,200 m2	60.00	432,000	
3 Allowance for expansion joints at grade level. Two locations.	90 m	300.00	27,000	
A21 Lowest Floor Construction **TOTAL : $**	7,200 m2	158.25	1,139,400	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
1 Flat plate slab. 2-way reinforced concrete. Thickness = 250mm. Rebar = 100kg/m3.	6,973 m2	220.70	1,538,600	
- Concrete supply	1,743 m3	163.00	284,100	
- Concrete placing	1,743 m3	35.00	61,000	
- Rebar allowance, 100kg/m3	150,000 kg	2.10	315,000	
- Screed / cure finish	6,973 m2	10.00	69,700	
- Isolation / control joints	6,973 m2	6.00	41,800	
- Formwork allowance	6,973 m2	110.00	767,000	
2 Columns. 300x300mm. 534 per floor. Reinforced concrete.	592 no.	734.00	434,500	
- Concrete supply	416 m3	169.00	70,300	
- Concrete placing	42 m3	35.00	1,500	
- Rebar allowance, 200kg/m3	8,315 m3	2.10	17,500	
- Formwork allowance	3,138 m2	110.00	345,200	
3 Stair & elevator cores. Reinforced concrete. 400mm thick. Allow 47.5m in height.	13,490 m2	467.20	6,302,500	
- Concrete supply	5,396 m3	163.00	879,500	
- Concrete placing	5,396 m3	35.00	188,900	
- Rebar allowance, 200kg/m3	1,079,200 kg	2.10	2,266,300	
- Formwork allowance	26,980 m2	110.00	2,967,800	
4 Concrete filled metal pan stairs and landings c/w painted steel pipe handrails.	72 flight	10,000.00	720,000	
5 Allowance for expansion joint. Two locations.	90 m	300.00	27,000	
A22 Upper Floor Construction **TOTAL : $**	7,200 m2	1,253.14	9,022,600	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A32 Walls Above Grade				
1 CW-1. Level 1. Double glazed with a high preformance thermal break. Unitized curtain wall assembly.	2,092 m2	1,200.00	2,510,400	
2 EW-1. Solid panel finish. Pre-fab panel system designed to suit structural grid.	6,443 m2	402.00	2,590,100	
- 19mm douglas fir slat siding	6,443 m2	150.00	966,500	
- Vertical J-channels & horizontal Z-grits.	6,443 m2	40.00	257,700	
- 200mm roxul cavity rock semi-rigid wool insulation	6,443 m2	70.00	451,000	
- Peel and stick air/vapour barrier	6,443 m2	20.00	128,900	
- 16mm (5/8") unsanded fir plywood	6,443 m2	21.00	135,300	
- 200mm steel studs 400mm o.c.	6,443 m2	75.00	483,200	
- 16mm gwb or wood wall board	6,443 m2	26.00	167,500	
3 EW-2. Glazing. Pre-fab panel system designed to suit structural grid.	9,665 m2	1,100.00	10,631,500	
4 Allowance for steel perimeter angle. 120x120x15mm. 27kg/m. Connections included.	124,740 kg	5.00	623,700	
5 Allowance for flashing, sealing, and caulking.	18,200 m2	25.00	455,000	
6 Allowance for vertical expansion joint. Four locations.	174 m	300.00	52,200	
A32 Walls Above Grade **TOTAL : $**	18,200 m2	926.53	16,862,900	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A33 Windows & Entrances				
1 Glazed vestibule door c/w frame and standard hardware.	14 pair	10,300.00	144,200	
- Double door	14 pair	4,000.00	56,000	
- Allowance for push-button door operator	14 no.	3,200.00	44,800	
- Allowance for hardware upgrade	14 no.	600.00	8,400	
- Allowance for electronic card access	14 no.	2,500.00	35,000	
2 Exterior metal door. Single door c/w frame and door closer.	12 No.	3,100.00	37,200	
- Single door	12 no.	2,500.00	30,000	
- Allowance for hardware upgrades	12 no.	600.00	7,200	
A33 Windows & Entrances **TOTAL : $**	26 no.	6,976.92	181,400	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A34 Roof Coverings				
1 Modified bituminous membrane roofing system c/w 2-ply membrane, 150mm rigid insulation sloped to drain, 6mm plywood, air/vapour barrier.	7,200 m2	145.00	1,044,000	
2 Allowance for expansion joints at roof level. Two locations.	90 m	275.00	24,800	
3 Allowance for flashing, sealing, and caulking.	7,200 m2	25.00	180,000	
A34 Roof Coverings **TOTAL : $**	7,200 m2	173.44	1,248,800	

A3 EXTERIOR ENCLOSURE	Quantity	Unit rate	Amount	Remarks
A35 Projections				
1 Allowance for roof parapet. Cladding type EW-1. Height = 1070mm.	419 m	914.60	383,200	
- Steel. Top rail. HSS 102x102x6.4. Mass = 18kg/m.	7,542 kg	6.00	45,300	
- Steel. Vertical supports. HSS 102x102x6.4. Mass = 18kg/m.	4,757 kg	6.00	28,500	
- Steel. Base for vertical supports c/w anchor bolts. Mass = 16kg/each .	3,952 kg	6.00	23,700	
- 19mm douglas fir slat siding.	897 m2	150.00	134,600	
- Vertical J-channels & horizontal Z-grits	897 m2	40.00	35,900	
- 16mm (5/8") unsanded fir plywood	897 m2	21.00	18,800	
- 200mm steel studs 400mm o.c.	448 m2	75.00	33,600	
- 200mm roxul cavity rock semi-rigid wool insulation	448 m2	70.00	31,400	
- Peel and stick air/vapour barrier	448 m2	20.00	9,000	
- Flashing, sealing, and caulking.	897 m2	25.00	22,400	
2 Allowance for expansion joints at roof parapet. Four locations.	9 m	300.00	2,700	
A35 Projections **TOTAL : $**	1,087 m2	355.01	385,900	

B1 PARTITIONS & DOORS	Quantity	Unit rate	Amount	Remarks
B11 Partitions				
1 P1 shaft wall. Allowance.	12,350 m2	100.00	1,235,000	
2 P2 corridor / common walls	9,600 m2	150.00	1,440,000	
3 Allowance for firestopping, sealing, and caulking.	21,950 m2	5.00	109,800	
4 Allowance for wood blocking, backing, and rough carpentry.	21,950 m2	7.00	153,700	
B11 Partitions **TOTAL : $**	21,950 m2	133.87	2,938,500	

B1 PARTITIONS & DOORS	Quantity	Unit rate	Amount	Remarks
B12 Doors				
1 Allowance for wood doors c/w frame and hardware.	900 no.	2,000.00	1,800,000	
2 Allowance for hardware upgrades.	900 no.	500.00	450,000	
B12 Doors **TOTAL : $**	900 No	2,500.00	2,250,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B21 Floor Finishes				
1 Lightweight concrete topping for structure & acoustics. 50mm thick.	86,400 m2	15.00	1,296,000	
2 Wood flooring (ash or maple) c/w wood baseboard.	79,200 m2	100.00	7,920,000	
3 Coloured body porcelain tile. 300x600mm.	7,200 m2	125.00	900,000	
B21 Floor Finishes **TOTAL : $**	86,400 m2	117.08	10,116,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Exposed structure. No ceiling finish.		Nil		
2 Paint exposed piping & ductwork. Allowance.	30,000 m2	45.00	1,350,000	
B22 Ceiling Finishes **TOTAL : $**	30,000 m2	45.00	1,350,000	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Paint finish. Allowance for interior face of exterior wall.	9,135 m2	20.00	182,700	
2 Paint finish. Allowance for interior partitions.	31,550 m2	20.00	631,000	
B23 Wall Finishes **TOTAL : $**	40,685 m2	20.00	813,700	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B31 Fittings & Fixtures				
Metals				
1 Exterior metal louvres. Architectural grade. 3x5m.	6 no.	7,500.00	45,000	
2 Recessed entry mat s/s.	240 m2	300.00	72,000	
Millwork				
3 W/C vanity millwork c/w mirror allowance.	72 no.	5,000.00	360,000	
4 Allowance for reception desk millwork.	2 no.	8,000.00	16,000	
5 Allowance for misc. millwork items. Allow 10K per 2,000 m2.	1 sum	360,000.00	360,000	
Specialties				
6 Washroom accessories.	72 sets	2,500.00	180,000	
7 Janitor closet. Allow 11 for upper floors & 5 on ground floor.	12 no.	1,500.00	18,000	
8 Allowance for window blinds c/w manual system and solar shade fabric.	18,270 m2	200.00	3,654,000	
Movable Furniture				
9 Furniture and seating, not included.		Nil		
10 Planters and potted plants, not included.		Nil		
B31 Fittings & Fixtures **TOTAL : $**	86,400 m2	54.46	4,705,000	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B32 Equipment				
1 Waste management chute system.	1 sum	78,000.00	78,000	
- Chute system c/w ducting and s/s chute doors.	2 no.	12,000.00	24,000	
- Tri-sorter waste management equipment system.	2 no.	24,000.00	48,000	
- Garbage Waste Bin REL.	2 no.	1,000.00	2,000	
- Organic Waste Bin REL.	2 no.	1,000.00	2,000	
- Recycle Waste Bin REL.	2 no.	1,000.00	2,000	
2 Window washing system, allowance.	1 sum	200,000.00	200,000	
3 Commercial equipment, not included.		Nil		
B32 Equipment **TOTAL : $**	86,400 m2	3.22	278,000	

B3 FITTINGS & EQUIPMENT	Quantity	Unit rate	Amount	Remarks
B33 Elevators				
1 Elevator 1: Passenger. Approximate size: 2.1x2.6m. Spec: 12 stops, 55m (pit to roof), hydraulic, 14,000 lbs. Includes cab allowance of $15K.	12 no.	375,000.00	4,500,000	
2 Elevator 2: Service. Approximate size: 2.7x3.6m. Spec: 12 stops, 55m (pit to roof), hydraulic, 14,000 lbs. Includes cab allowance of $15K.	4 no.	500,000.00	2,000,000	
B33 Elevators **TOTAL : $**	16 No	406,250.00	6,500,000	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C11 Plumbing & Drainage				
1 Allowance for base building plumbing and drainage services.	86,400 m2	38.00	3,283,200	
2 Plumbing c/w low flow fixtures, DCW, DHW, drainage & vent piping, connections.	1 sum	506,500.00	506,500	
- Exterior hose bibs	5 no.	500.00	2,500	
- Janitor sink, precast floor mounted, faucet with hose set.	12 no.	2,000.00	24,000	
- Allowance for plumbing fixtures not yet identified.	10 no.	2,400.00	24,000	
- Water closet c/w electronic flush valve, wall mounted.	84 no.	3,200.00	268,800	
- Lavatory c/w electronic 'no touch' valve.	72 no.	2,600.00	187,200	
3 Gas connections	22 no.	2,250.00	49,500	
4 Gas connections / rough in for future commercial spaces on level 1	10 no.	2,250.00	22,500	
5 Gas main piping, connections to HVAC equipment etc.	1 sum	20,000.00	20,000	
6 Storm drainage	1 sum	50,400.00	50,400	
- Allow for roof drains & RWLs	7,200 m2	7.00	50,400	
Allowances				
7 Allowance for seismic requirements.	86,400 m2	0.30	25,900	
8 P&D miscellaneous such as start-up, cleaning, drawing, tagging, identification, testing, verification.	86,400 m2	2.00	172,800	
C11 Plumbing & Drainage **TOTAL : $**	86,400 m2	47.81	4,130,800	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C12 Fire Protection				
1 Allowance for fire water entry assembly, main header, fire pump, siamese connections etc.	1 sum	100,000.00	100,000	
2 Allowance for sprinkler system	86,400 m2	40.00	3,456,000	
3 Allowance for fire extinguishers etc.	1 sum	20,000.00	20,000	
4 Allowance for seismic requirements.	86,400 m2	0.80	69,100	
5 Allowance for FP misc. such as start up, cleaning, dwgs, tagging, identification, testing, etc.	86,400 m2	1.50	129,600	
C12 Fire Protection **TOTAL : $**	86,400 m2	43.69	3,774,700	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C13 HVAC				
1 Allowance for heat generation & distribution	1 sum	960,000.00	960,000	
2 Allowance for radiant floor heating system c/w PEX tubing, PEX fittings, PEX tools, manifolds, controls, and panels.	86,400 m2	35.00	3,024,000	
3 Allowance for heating & cooling	86,400 m2	80.00	6,912,000	
4 Allowance for ventilation & exhaust	86,400 m2	120.00	10,368,000	
5 Allow for seismic requirements, silencers, vibration isolations, etc.	86,400 m2	5.00	432,000	
6 HVAC misc. such as start-up, cleaning, drawings, tagging, identification, etc.	86,400 m2	2.40	207,400	
7 Testing, adjusting, balancing c/w commissioning.	86,400 m2	3.50	302,400	
C13 HVAC **TOTAL : $**	86,400 m2	257.01	22,205,800	

C1 MECHANICAL	Quantity	Unit rate	Amount	Remarks
C14 Controls				
1 Allow for DDC controls	86,400 m2	38.00	3,283,200	
C14 Controls **TOTAL : $**	86,400 m2	38.00	3,283,200	

C2 ELECTRICAL	Quantity	Unit rate	Amount	Remarks
C21 Service & Distribution				
1 Service & distribution	86,400 m2	40.00	3,456,000	
C21 Service & Distribution **TOTAL : $**	86,400 m2	40.00	3,456,000	

C2 ELECTRICAL	Quantity	Unit rate	Amount	Remarks
C22 Lighting, Devices & Heating				
1 Supply, install & wire light fixtures	86,400 m2	40.00	3,456,000	
2 Exit & emergency lighting	86,400 m2	2.00	172,800	
3 Lighting controls	86,400 m2	5.00	432,000	
4 Power outlets, devices, and connections.	86,400 m2	20.00	1,728,000	
5 Connections to mechancial equipment	86,400 m2	8.00	691,200	
C22 Lighting, Devices & Heating **TOTAL : $**	86,400 m2	75.00	6,480,000	

C2 ELECTRICAL		Quantity	Unit rate	Amount	Remarks
C23 Systems & Ancillaries					
1	Fire alarm system	86,400 m2	18.00	1,555,200	
2	Communication system	86,400 m2	20.00	1,728,000	
3	CATV system	1 sum	100,000.00	100,000	
4	Other miscellaneous systems		allow	1,500,000	
5	Security systems - not included		nil.		
C23 Systems & Ancillaries	**TOTAL : $**	86,400 m2	56.52	4,883,200	

D1 SITE WORK	Quantity	Unit rate	Amount	Remarks
D11 Site Development Costs have only been inserted at Sub-Element level				
D11 Site Development **TOTAL : $**	26,200 m2	150.00	3,930,000	

D1 SITE WORK	Quantity	Unit rate	Amount	Remarks
D12 Mechanical Site Services Costs have only been inserted at Sub-Element level				
D12 Mechanical Site Services **TOTAL : $**	26,200 m2	25.00	655,000	

D1 SITE WORK		Quantity	Unit rate	Amount	Remarks
D13 Electrical Site Services					
Costs have only been inserted at Sub-Element level					
D13 Electrical Site Services	**TOTAL : $**	26,200 m2	20.00	524,000	

Z2 ALLOWANCES	Quantity	Unit rate	Amount	Remarks
Z24 Cash Allowance				
1 Interior signange allowance. Allow 40k per floor.	12 no.	30,000.00	360,000	
2 Exterior signage allowance. Allow 20k per entrance.	2 no.	20,000.00	40,000	
3 Artwork, Lobby. Allow 5k per lobby.	2 no.	5,000.00	10,000	
Z24 Cash Allowance **TOTAL : $**	1 sum	410,000.00	410,000	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Commercial: Mass Timber Structure**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 72,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A2 STRUCTURE					18,907,600		262.61	88.3
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction	0.870	62,730 m2	247.00	15,517,300		215.52		
A23 Roof Construction	0.100	7,200 m2	243.00	1,747,300		24.27		
A24 Tower Cranes	0.000	1 sum	1,643,000.00	1,643,000		22.82		
NET BUILDING COST - INCLUDING SITE				**$**	**18,907,600**		262.61	88.3
Z1 GENERAL REQUIREMENTS & FEE					2,514,800		34.93	11.7
Z11 General Requirements		10.0 %		1,890,800		26.26		
Z12 Fee		3.0 %		624,000		8.67		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**21,422,400**		297.53	100.0
Z2 ALLOWANCES					3,320,400		46.12	
Z21 Design & Pricing Allowance		10.0 %		2,142,200		29.75		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		1,178,200		16.36		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**24,742,800**		343.65	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**24,742,800**	**$**	**343.65**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Mass Timber Structure				
1 Connection between mass timber structure and concrete podium structure, level 2.	592 no.	186.70	110,500	
- Steel plate 265x265x25mm. 350mm thick.	8,288 kg	5.00	41,400	
- 19mm DIA. cast in place anchor bolts c/w nuts washer nut at base.	2,368 no.	15.00	35,500	
- Allowance for misc.	1 sum	4,000.00	4,000	
- Allowance for labour	592 no.	50.00	29,600	
2 Flate plate slabs. 2-way CLT panels.	62,730 m2	167.80	10,528,000	
- Pre-fab CLT (2-way) panels, 175mm thick, 12m long, J-grade SPF, non-visual. 194 panels/fl.	62,730 m2	165.00	10,350,500	
- Labour allowance. Approximately 6 panels per hour.	1,746 no.	40.00	69,800	
- 140x25mm thick plywood spine screwed to each panel E/W direction	37,000 m	2.50	92,500	
- 140x25mm thick plywood spine screwed to each panel N/S direction	6,060 m	2.50	15,200	
3 Allowance for expansion joint. Two locations. Allow 90m/floor.	810 m	300.00	243,000	
4 Columns. GLT c/w steel point connections. 592 per floor.	5,328 no.	870.10	4,635,800	
- pre-fab GLT columns. section: 265x265mm. height: 3m.	1,119 m3	4,000.00	4,476,000	
- Labour allowance. Approximately 8 columns installed per hour.	5,328 no.	30.00	159,800	
- pre-fab hollow structural steel point connections		incl.		
A22 Upper Floor Construction **TOTAL : $**	62,730 m2	247.37	15,517,300	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Mass Timber Structure.				
1 Flat plate slab. 2-way CLT panels.	7,200 m2	167.60	1,206,500	
- Pre-fab CLT (2-way) panels. 175mm thick, 12m long, J-Grade SPF, non-visual. 200 panels.	7,200 m2	165.00	1,188,000	
- Labour allowance. Approximately 6 panels installed per hour.	200 no.	40.00	8,000	
- 140x25mm thick plywood spine screwed to each panel E/W direction	3,600 m	2.50	9,000	
- 140x25mm thick plywood spine screwed to each panel N/S direction	600 m	2.50	1,500	
2 Allowance for expansion joint. Two locations. Allow 90m/floor.	90 m	300.00	27,000	
3 Columns GLT c/w steel point connections. 592 per floor.	592 no.	867.90	513,800	
- pre-fab GLT columns. section: 265x265mm. height: 3m.	124 m3	4,000.00	496,000	
- Labour allowance. Approximately 8 columns installed per hour.	592 no.	30.00	17,800	
- pre-fab hollow structural steel point connections		incl.		
A23 Roof Construction **TOTAL : $**	7,200 m2	242.68	1,747,300	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	821,500.00	821,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	13 No.	50,000.00	650,000	
2 Tower Crane #2	1 Sum	821,500.00	821,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day, 20 days use per 28 days.	13 No.	50,000.00	650,000	
A24 Tower Cranes **TOTAL : $**	1 sum	1,643,000.00	1,643,000	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Commercial: Mass Timber Encapsulation**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 72,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
B INTERIORS		72,000 m2			13,241,900		183.92	88.3
B2 FINISHES					13,241,900		183.92	88.3
B22 Ceiling Finishes	0.970	69,930 m2	145.00	10,139,900		140.83		
B23 Wall Finishes	0.330	23,680 m2	131.00	3,102,000		43.08		
NET BUILDING COST - INCLUDING SITE				**$**	**13,241,900**		183.92	88.3
Z1 GENERAL REQUIREMENTS & FEE					1,761,200		24.46	11.7
Z11 General Requirements		10.0 %		1,324,200		18.39		
Z12 Fee		3.0 %		437,000		6.07		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**15,003,100**		208.38	100.0
Z2 ALLOWANCES					2,325,500		32.30	
Z21 Design & Pricing Allowance		10.0 %		1,500,300		20.84		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		825,200		11.46		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**17,328,600**		240.68	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**17,328,600**	**$**	**240.68**	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Encapsulation of mass timber structure. Underside of CLT floor slabs.	62,730 m2	125.00	7,841,300	
- 16mm gypsum board, type X, moisture resistant	62,730 m2	35.00	2,195,600	
- 38mm steel hat track @ 400mm o.c.	62,730 m2	11.00	690,000	
- 19mm steel resilient furring bar @ 400 o.c.	62,730 m2	8.00	501,800	
- 16mm gypsum board, type x	62,730 m2	26.00	1,631,000	
- paint finish	62,730 m2	45.00	2,822,900	
2 Encapsulation of mass timber structure. Underside of CLT roof slab.	7,200 m2	125.00	900,000	
- 16mm gypsum board, type X, moisture resistant	7,200 m2	35.00	252,000	
- 38mm steel hat track @ 400mm o.c.	7,200 m2	11.00	79,200	
- 19mm steel resilient furring bar @ 400 o.c.	7,200 m2	8.00	57,600	
- 16mm gypsum board, type x	7,200 m2	26.00	187,200	
- paint finish	7,200 m2	45.00	324,000	
3 Allowance for firestopping, sealing, caulking, misc.	69,930 m2	20.00	1,398,600	
B22 Ceiling Finishes **TOTAL : $**	69,930 m2	145.00	10,139,900	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Encapsulation of mass timber structure. GLT columns slab to slab.	21,312 m2	111.00	2,365,600	
- 16mm gypsum board, type X, moisture resistant	21,312 m2	40.00	852,500	
- 38mm steel hat track @ 400mm o.c.	21,312 m2	11.00	234,400	
- 19mm steel resilient furring bar @ 400 o.c.	21,312 m2	8.00	170,500	
- 16mm gypsum board, type x	21,312 m2	32.00	682,000	
- paint finish	21,312 m2	20.00	426,200	
2 Encapsulation of mass timber structure. GLT columns (roof structure).	2,368 m2	111.00	262,800	
- 16mm gypsum board, type X, moisture resistant	2,368 m2	40.00	94,700	
- 38mm steel hat track @ 400mm o.c.	2,368 m2	11.00	26,000	
- 19mm steel resilient furring bar @ 400 o.c.	2,368 m2	8.00	18,900	
- 16mm gypsum board, type x	2,368 m2	32.00	75,800	
- paint finish	2,368 m2	20.00	47,400	
3 Allowance for firestopping, sealing, caulking, misc.	23,680 m2	20.00	473,600	
B23 Wall Finishes **TOTAL : $**	23,680 m2	131.00	3,102,000	

Project	: **EMTC - Cost Comparison**			Report date	: 22 Sep 2017
	: **Commercial: Concrete Structure**			Page No.	: 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**		Bldg Type	: 815
Owner	: **National Research Council Canada**			C.T. Index	: 0.0
Consultant	: **Llamaw Studio Inc.**			GFA	: 72,000 m2

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per m2		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A2 STRUCTURE					23,827,300		330.93	88.3
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction	0.870	62,730 m2	284.00	17,794,200		247.14		
A23 Roof Construction	0.100	7,200 m2	308.00	2,218,600		30.81		
A24 Tower Cranes	0.000	1 sum	3,814,500.00	3,814,500		52.98		
NET BUILDING COST - INCLUDING SITE				**$**	**23,827,300**		330.93	88.3
Z1 GENERAL REQUIREMENTS & FEE					3,169,000		44.01	11.7
Z11 General Requirements		10.0 %		2,382,700		33.09		
Z12 Fee		3.0 %		786,300		10.92		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**26,996,300**		374.95	100.0
Z2 ALLOWANCES					4,184,400		58.12	
Z21 Design & Pricing Allowance		10.0 %		2,699,600		37.49		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		1,484,800		20.62		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**31,180,700**		433.07	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**31,180,700**	**$**	**433.07**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Reinforced Concrete Structure				
1 Flat plate slabs. 2-way reinforced concrete. Thickness = 250mm. Rebar = 100kg/m3.	62,730 m2	228.00	14,302,500	
- Concrete supply	15,683 m3	163.00	2,556,300	
- Concrete placing	15,683 m3	35.00	548,900	
- Rebar allowance, 100kg/m3	1,568,250 kg	2.10	3,293,300	
- Screed/cure finish	62,730 m2	10.00	627,300	
- Isolation/control joints	62,730 m2	6.00	376,400	
- Formwork allowance	62,730 m2	110.00	6,900,300	
2 Allowance for expansion joint. Two locations. Allow 90m/floor.	810 m	300.00	243,000	
3 Columns. 300x300mm. 592 per floor. Reinforced concrete.	5,328 no.	609.70	3,248,700	
- Concrete supply	1,558 m3	163.00	254,000	
- Concrete placing	1,558 m3	35.00	54,500	
- Rebar allowance, 200kg/m3	311,688 kg	2.10	654,500	
- Formwork allowance	20,779 m2	110.00	2,285,700	
A22 Upper Floor Construction **TOTAL : $**	62,730 m2	283.66	17,794,200	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Reinforced Concrete Structure.				
1 Flat plate slabs. 2-way reinforced concrete. Thickness = 250mm. Rebar = 150kg/m3.	7,200 m2	254.30	1,830,600	
- Concrete supply	1,800 m3	163.00	293,400	
- Concrete placing	1,800 m3	35.00	63,000	
- Rebar allowance, 150kg/m3.	270,000 kg	2.10	567,000	
- Screed/cure finish	7,200 m2	10.00	72,000	
- Isolation/control joints	7,200 m2	6.00	43,200	
- Formwork allowance	7,200 m2	110.00	792,000	
2 Allowance for expansion joint. Two locations. Allow 90m/floor.	90 m	300.00	27,000	
3 Columns. 300x300mm. 592 per floor. Reinforced concrete.	592 no.	609.80	361,000	
- Concrete supply	173 m3	163.00	28,200	
- Concrete placing	173 m3	35.00	6,100	
- Rebar allowance, 200kg/m3	34,632 kg	2.10	72,700	
- Formwork allowance	2,309 m2	110.00	254,000	
A23 Roof Construction **TOTAL : $**	7,200 m2	308.14	2,218,600	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	1,271,500.00	1,271,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	22 no.	50,000.00	1,100,000	
2 Tower Crane #2	1 Sum	1,271,500.00	1,271,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	22 no.	50,000.00	1,100,000	
3 Tower Crane #3	1 Sum	1,271,500.00	1,271,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	22 no.	50,000.00	1,100,000	
A24 Tower Cranes **TOTAL : $**	1 sum	3,814,500.00	3,814,500	

Project	: **EMTC - Cost Comparison**		Report date : 22 Sep 2017
	: **Commercial: Steel Structure**		Page No. : 1
Location	: **Canada**	**ELEMENTAL COST SUMMARY**	Bldg Type : 815
Owner	: **National Research Council Canada**		C.T. Index : 0.0
Consultant	: **Llamaw Studio Inc.**		GFA : 72,000 m2

Element	Ratio to GFA	Elemental Cost Quantity	Elemental Cost Unit rate	Elemental Amount Sub-Total	Elemental Amount Total	Rate per m2 Sub-Total	Rate per m2 Total	%
A2 STRUCTURE					22,305,900		309.80	50.6
A21 Lowest Floor Construction				0		0.00		
A22 Upper Floor Construction	0.870	62,730 m2	271.00	16,992,000		236.00		
A23 Roof Construction	0.100	7,200 m2	271.00	1,949,400		27.08		
A24 Tower Cranes	0.000	1 sum	3,364,500.00	3,364,500		46.73		
B2 FINISHES					16,577,100		230.24	37.6
B22 Ceiling Finishes	0.970	69,930 m2	191.00	13,356,700		185.51		
B23 Wall Finishes	0.330	23,680 m2	136.00	3,220,400		44.73		
NET BUILDING COST - INCLUDING SITE				**$**	**38,883,000**		540.04	88.3
Z1 GENERAL REQUIREMENTS & FEE					5,171,400		71.83	11.7
Z11 General Requirements		10.0 %		3,888,300		54.00		
Z12 Fee		3.0 %		1,283,100		17.82		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES				**$**	**44,054,400**		611.87	100.0
Z2 ALLOWANCES					9,141,300		126.96	
Z21 Design & Pricing Allowance		15.0 %		6,608,200		91.78		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		2,533,100		35.18		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES				**$**	**53,195,700**		738.83	
VALUE ADDED TAX (GST/HST)					0		0.00	
Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE				**$**	**53,195,700**	**$**	**738.83**	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A22 Upper Floor Construction				
Steel Structure				
1 Concrete topping on metal deck. Note concrete topping incl. elsewhere.	62,730 m2	45.00	2,822,900	
- Concrete supply		incl.		
- Concrete placing		incl.		
- Rebar, WWM		incl.		
- Screed / cure finish		incl.		
- Isolation / control joints		incl.		
- 38mm galvanized steel deck	62,730 m2	45.00	2,822,900	
2 Allowance for expansion joint. Two locations. Allow 90m/floor.	810 m	300.00	243,000	
3 Structural support to above. Steel structure.	62,730 m2	222.00	13,926,100	
- Steel beams, columns, OWSJ etc. Allow 40kg/m2.	2,509,200 kg	5.00	12,546,000	
- Miscellaneous details and connections.	250,920 kg	5.50	1,380,100	
A22 Upper Floor Construction **TOTAL : $**	62,730 m2	270.88	16,992,000	

A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A23 Roof Construction				
Steel Structure				
1 Concrete topping on metal deck. Note concrete topping incl. elsewhere.	7,200 m2	45.00	324,000	
- Concrete supply		incl.		
- Concrete placing		incl.		
- Rebar, WWM		incl.		
- Screed / cure finish		incl.		
- Isolation / control joints		incl.		
- 38mm galvanized steel deck	7,200 m2	45.00	324,000	
2 Allowance for expansion joint. Two locations. Allow 90m/floor.	90 m	300.00	27,000	
3 Structural support to above. Steel structure.	7,200 m2	222.00	1,598,400	
- Steel beams, columns, OWSJ etc. Allow 40kg/m2.	288,000 kg	5.00	1,440,000	
- Miscellaneous details and connections.	28,800 kg	5.50	158,400	
A23 Roof Construction **TOTAL : $**	7,200 m2	270.75	1,949,400	

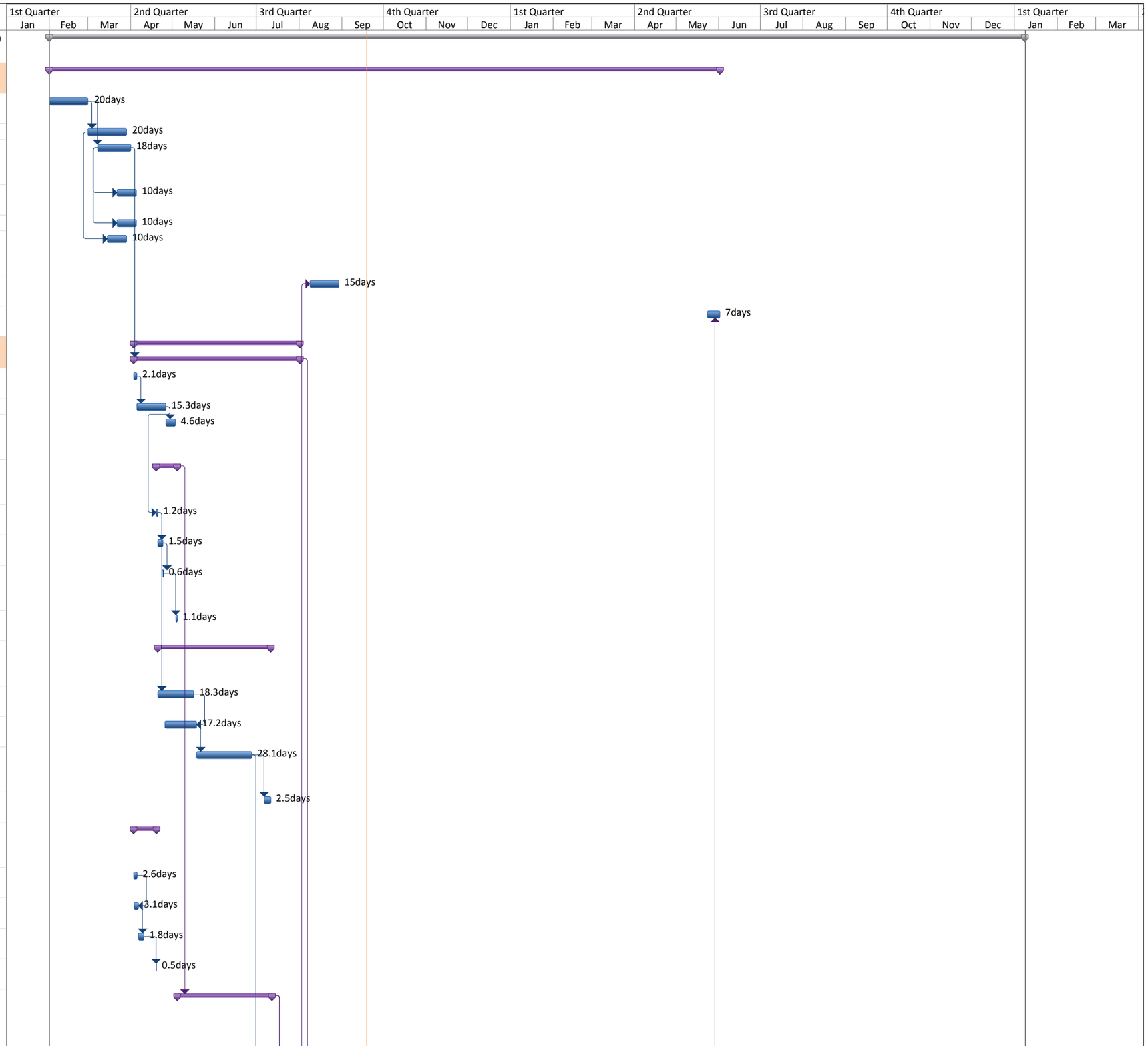
A2 STRUCTURE	Quantity	Unit rate	Amount	Remarks
A24 Tower Cranes				
1 Tower Crane #1	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	19 no.	50,000.00	950,000	
2 Tower Crane #2	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	19 no.	50,000.00	950,000	
3 Tower Crane #3	1 Sum	1,121,500.00	1,121,500	
- Delivery & erection	1 allow	100,000.00	100,000	
- Engineering	1 allow	1,500.00	1,500	
- Maintenance & Inspections	1 allow	18,000.00	18,000	
- Shipping & dismantle	1 allow	52,000.00	52,000	
- Monthly rental rate (28 days). Rate based on an 8 hour day. 20 days use per 28 days.	19 no.	50,000.00	950,000	
A24 Tower Cranes **TOTAL : $**	1 sum	3,364,500.00	3,364,500	

B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B22 Ceiling Finishes				
1 Encapsulation of steel structure. Underside of floor slabs.	62,730 m2	116.00	7,276,700	
- 38mm steel hat track @400mm o.c.	62,730 m2	11.00	690,000	
- 19mm steel resilient furring bar @ 400mm o.c.	62,730 m2	8.00	501,800	
- 16mm gypsum board, type x	62,730 m2	26.00	1,631,000	
- 16mm gypsum board, type x	62,730 m2	26.00	1,631,000	
- paint finish	62,730 m2	45.00	2,822,900	
2 Encapsulation of steel structure. Underside of roof slab.	7,200 m2	116.00	835,200	
- 38mm steel hat track @400mm o.c.	7,200 m2	11.00	79,200	
- 19mm steel resilient furring bar @ 400mm o.c.	7,200 m2	8.00	57,600	
- 16mm gypsum board, type x	7,200 m2	26.00	187,200	
- 16mm gypsum board, type x	7,200 m2	26.00	187,200	
- paint finish	7,200 m2	45.00	324,000	
3 Allowance for acoustics.	69,930 m2	55.00	3,846,200	
- 152mm mineral wool insulation	69,930 m2	55.00	3,846,200	
4 Allowance for firestopping, sealing, caulking, misc.	69,930 m2	20.00	1,398,600	
B22 Ceiling Finishes **TOTAL : $**	69,930 m2	191.00	13,356,700	

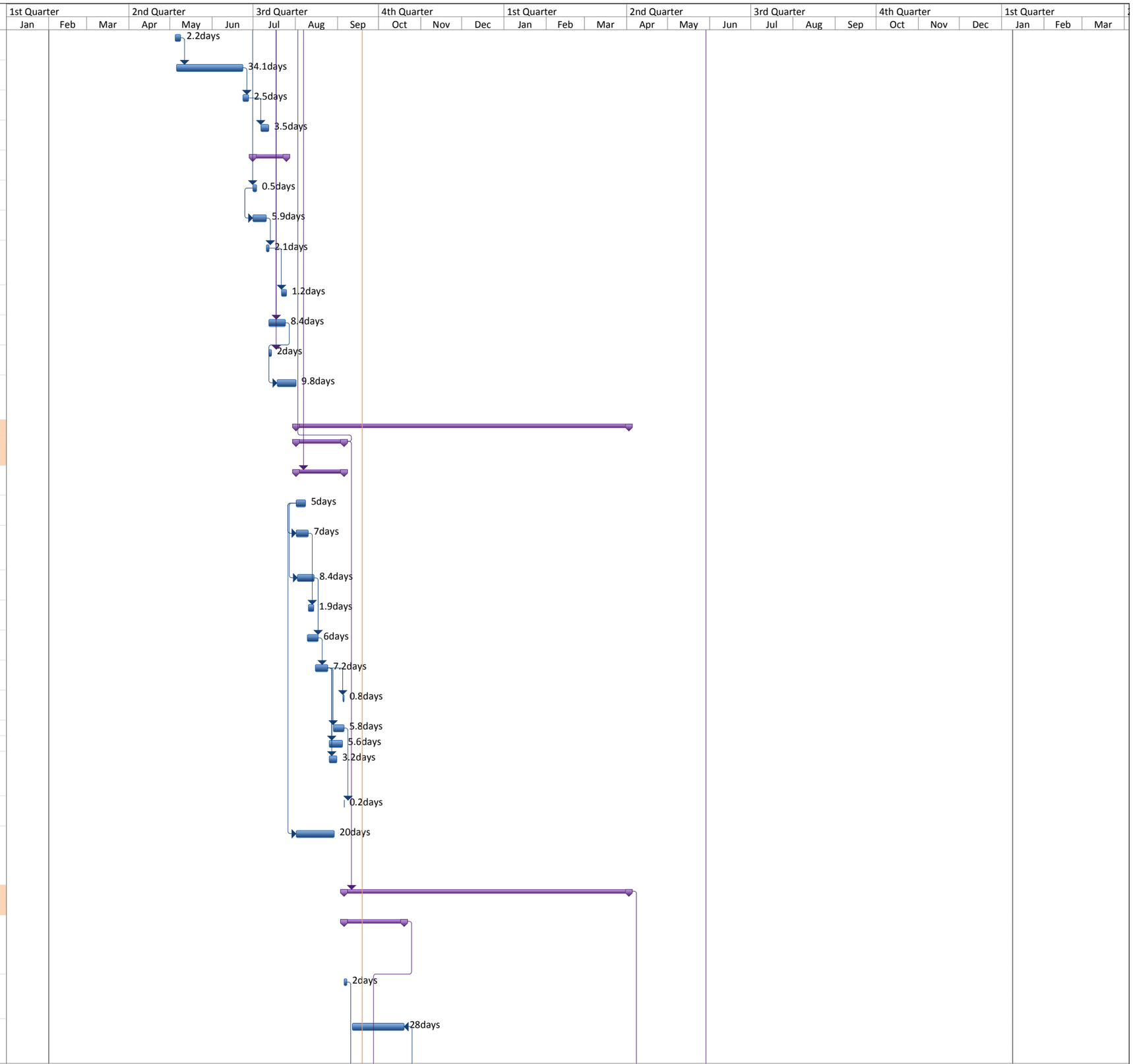
B2 FINISHES	Quantity	Unit rate	Amount	Remarks
B23 Wall Finishes				
1 Encapsulation of steel columns. Slab to slab.	21,312 m2	116.00	2,472,100	
- 38mm steel hat track @400mm o.c.	21,312 m2	11.00	234,400	
- 19mm steel resilient furring bar @ 400mm o.c.	21,312 m2	8.00	170,500	
- 16mm gypsum board, type x	21,312 m2	26.00	554,100	
- 16mm gypsum board, type x	21,312 m2	26.00	554,100	
- paint finish	21,312 m2	45.00	959,000	
2 Encapsulation of steel columns. Slab to slab (roof structure).	2,368 m2	116.00	274,700	
- 38mm steel hat track @400mm o.c.	2,368 m2	11.00	26,000	
- 19mm steel resilient furring bar @ 400mm o.c.	2,368 m2	8.00	18,900	
- 16mm gypsum board, type x	2,368 m2	26.00	61,600	
- 16mm gypsum board, type x	2,368 m2	26.00	61,600	
- paint finish	2,368 m2	45.00	106,600	
3 Allowance for firestopping, sealing, caulking, misc.	23,680 m2	20.00	473,600	
B23 Wall Finishes **TOTAL : $**	23,680 m2	136.00	3,220,400	

Appendix F
Detailed Schedule
Residential Building

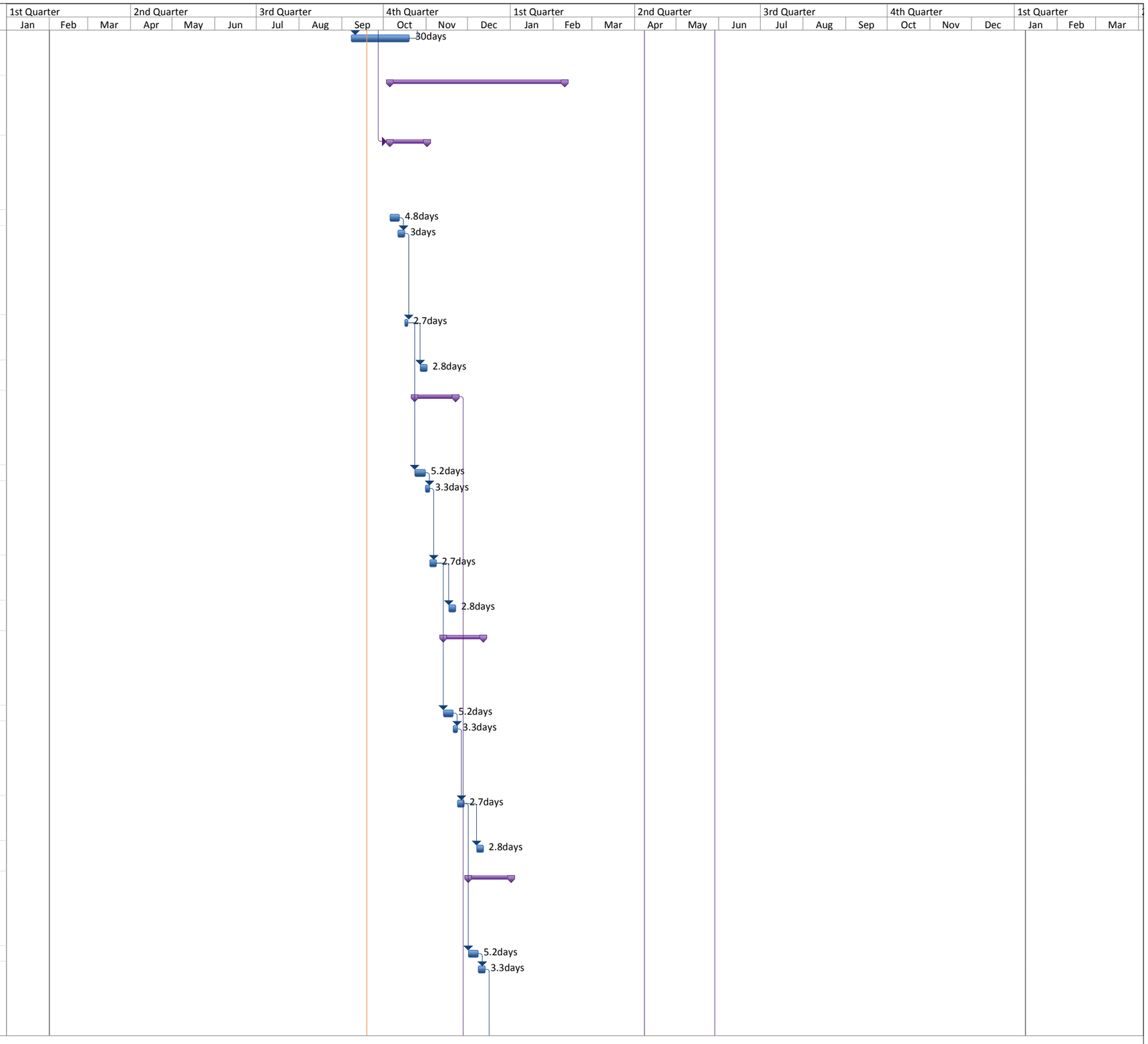
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Mass Timber Building - Residential**	**504.7days**	**Wed 01/02/17**	**Tue 08/01/19**
1		**General Conditions and Management**	**347.8days**	**Wed 01/02/17**	**Fri 01/06/18**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 2 cranes	15days	Tue 08/08/17	Tue 29/08/17
9		Tower cranes dismantle - 2 cranes	7days	Wed 23/05/18	Fri 01/06/18
10		**A1 Substructure**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
11		**A11 Foundations**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
12		Clearing and grubbing	2.1days	Mon 03/04/17	Wed 05/04/17
13		Excavation	15.3days	Wed 05/04/17	Wed 26/04/17
14		Perimeter drain c/w filter socket and granular cover	4.6days	Wed 26/04/17	Wed 03/05/17
15		**Reinforced concrete strip footing**	**11.5days**	**Wed 19/04/17**	**Thu 04/05/17**
16		Concrete reinforcement	1.2days	Wed 19/04/17	Thu 20/04/17
17		Formwork to sides	1.5days	Thu 20/04/17	Mon 24/04/17
18		Concrete placing by pumps	0.6days	Mon 24/04/17	Mon 24/04/17
19		Stripping formwork	1.1days	Wed 03/05/17	Thu 04/05/17
20		**Reinforced concrete pad footing to columns**	**57.9days**	**Thu 20/04/17**	**Tue 11/07/17**
21		Concrete reinforcement	18.3days	Thu 20/04/17	Tue 16/05/17
22		Formwork to sides	17.2days	Tue 25/04/17	Thu 18/05/17
23		Concrete placing by pumps	28.1days	Thu 18/05/17	Tue 27/06/17
24		Stripping formwork	2.5days	Thu 06/07/17	Tue 11/07/17
25		**Raft slab below elevator & stair cores**	**12.8days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2.6days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.8days	Thu 06/04/17	Mon 10/04/17
29		Stripping formwork	0.5days	Wed 19/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**48.3days**	**Thu 04/05/17**	**Wed 12/07/17**



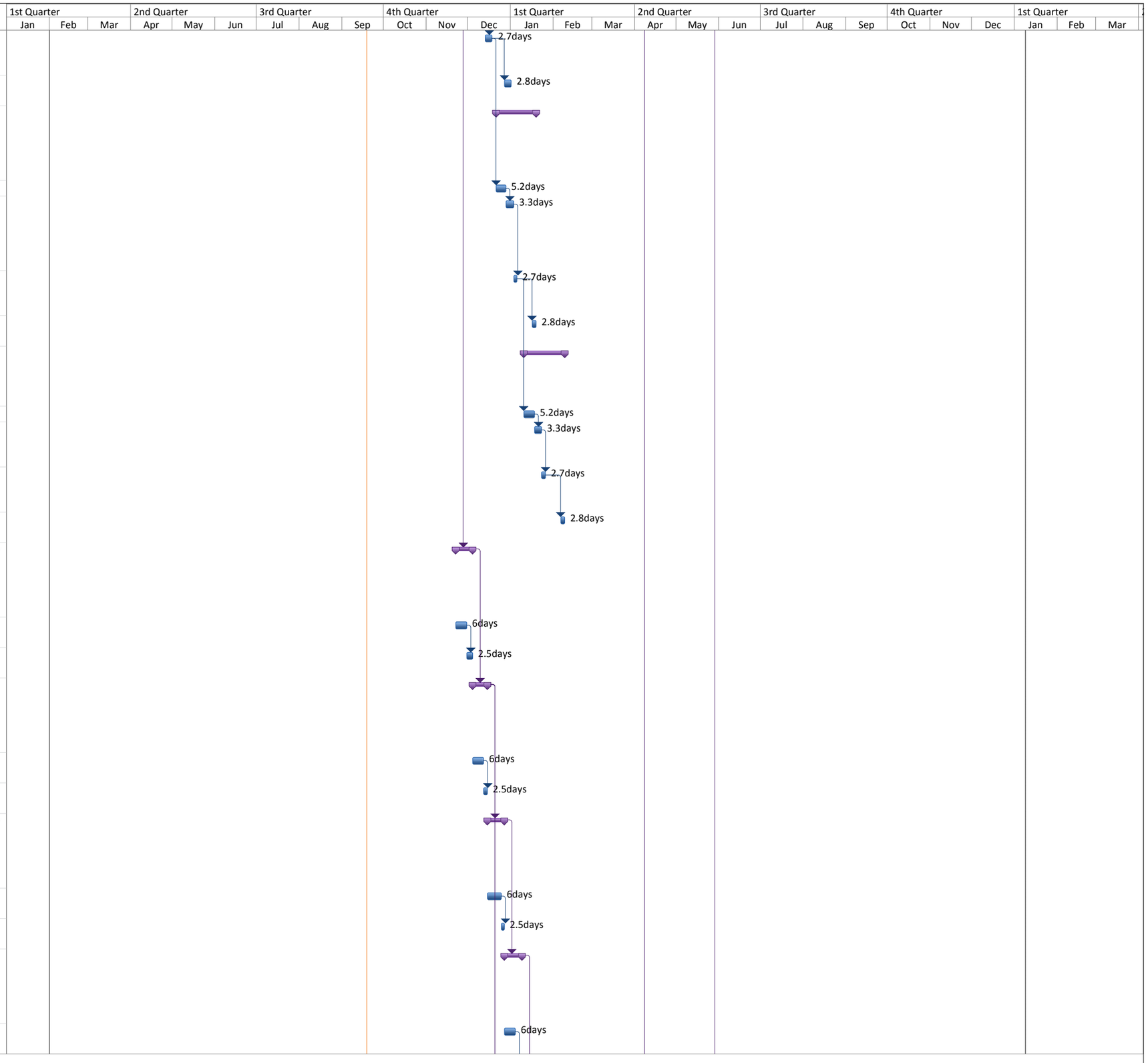
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
31		Concrete reinforcement	2.2days	Thu 04/05/17	Mon 08/05/17
32		Formwork to sides	34.1days	Fri 05/05/17	Fri 23/06/17
33		Concrete placing by pump	2.5days	Fri 23/06/17	Tue 27/06/17
34		Stripping formwork	3.5days	Thu 06/07/17	Wed 12/07/17
35		**Piers. Reinforced concrete**	**16.2days**	**Fri 30/06/17**	**Tue 25/07/17**
36		Concrete reinforcement	0.5days	Fri 30/06/17	Mon 03/07/17
37		Formwork to sides	5.9days	Fri 30/06/17	Mon 10/07/17
38		Concrete placing by pumps	2.1days	Mon 10/07/17	Wed 12/07/17
39		Stripping formwork	1.2days	Fri 21/07/17	Tue 25/07/17
40		Extraover for dampproofing	8.4days	Wed 12/07/17	Mon 24/07/17
41		Allowance for expansion joint	2days	Wed 12/07/17	Fri 14/07/17
42		Backfill excavated area c/w compaction	9.8days	Tue 18/07/17	Tue 01/08/17
43		**A2 Structure**	**174.2days**	**Tue 01/08/17**	**Mon 02/04/18**
44		**A21 Lowest Floor Construction**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
45		**250 mm reinforced concrete slab**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
46		6 mm vapour barier	5days	Tue 01/08/17	Tue 08/08/17
47		300 mm granular fill compacted slab	7days	Tue 01/08/17	Thu 10/08/17
48		75 mm rigid insulation	8.4days	Wed 02/08/17	Mon 14/08/17
49		Formwork to openings	1.9days	Thu 10/08/17	Mon 14/08/17
50		Concrete reinforcement	6days	Wed 09/08/17	Thu 17/08/17
51		Concrete placing by pump	7.2days	Tue 15/08/17	Thu 24/08/17
52		Stripping formwork	0.8days	Mon 04/09/17	Tue 05/09/17
53		Finishing	5.8days	Mon 28/08/17	Tue 05/09/17
54		Water curing	5.6days	Fri 25/08/17	Mon 04/09/17
55		Sheet membrane curing	3.2days	Fri 25/08/17	Thu 31/08/17
56		Sawcut control joints	0.2days	Tue 05/09/17	Tue 05/09/17
57		Civil works. General civil infrastructure allowance	20days	Tue 01/08/17	Tue 29/08/17
58		**A22 Upper Floor Construction**	**148.6days**	**Tue 05/09/17**	**Mon 02/04/18**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**32days**	**Tue 05/09/17**	**Thu 19/10/17**
60		Concrete columns to Level 01	2days	Tue 05/09/17	Thu 07/09/17
61		Concrete stair and elevators cores to Level 01	28days	Mon 11/09/17	Thu 19/10/17



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
62		Concrete suspended slab to Level 02	30days	Thu 07/09/17	Thu 19/10/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**90.1days**	**Thu 05/10/17**	**Fri 09/02/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 5 cores**	**18.8days**	**Thu 05/10/17**	**Wed 01/11/17**
65		Rebar	4.8days	Thu 05/10/17	Thu 12/10/17
66		Installation of customed engineered formwork. Height for 2 floors	3days	Wed 11/10/17	Mon 16/10/17
67		Concrete placing by pumps	2.7days	Mon 16/10/17	Wed 18/10/17
68		Stripping formwork	2.8days	Fri 27/10/17	Wed 01/11/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 5 cores**	**21.1days**	**Mon 23/10/17**	**Wed 22/11/17**
70		Rebar	5.2days	Mon 23/10/17	Tue 31/10/17
71		Installation of engineered formwork. Height for 2 floors	3.3days	Tue 31/10/17	Fri 03/11/17
72		Concrete placing by pumps	2.7days	Fri 03/11/17	Wed 08/11/17
73		Stripping formwork	2.8days	Fri 17/11/17	Wed 22/11/17
74		**Concrete stair and elevator cores to Level 06, Level 07. 5 cores**	**21.1days**	**Mon 13/11/17**	**Tue 12/12/17**
75		Rebar	5.2days	Mon 13/11/17	Mon 20/11/17
76		Installation of engineered formwork. Height for 2 floors	3.3days	Mon 20/11/17	Thu 23/11/17
77		Concrete placing by pumps	2.7days	Thu 23/11/17	Tue 28/11/17
78		Stripping formwork	2.8days	Thu 07/12/17	Tue 12/12/17
79		**Concrete stair and elevator cores to Level 08, Level 09. 5 cores**	**21.1days**	**Fri 01/12/17**	**Mon 01/01/18**
80		Rebar	5.2days	Fri 01/12/17	Fri 08/12/17
81		Installation of engineered formwork. Height for 2 floors	3.3days	Fri 08/12/17	Wed 13/12/17



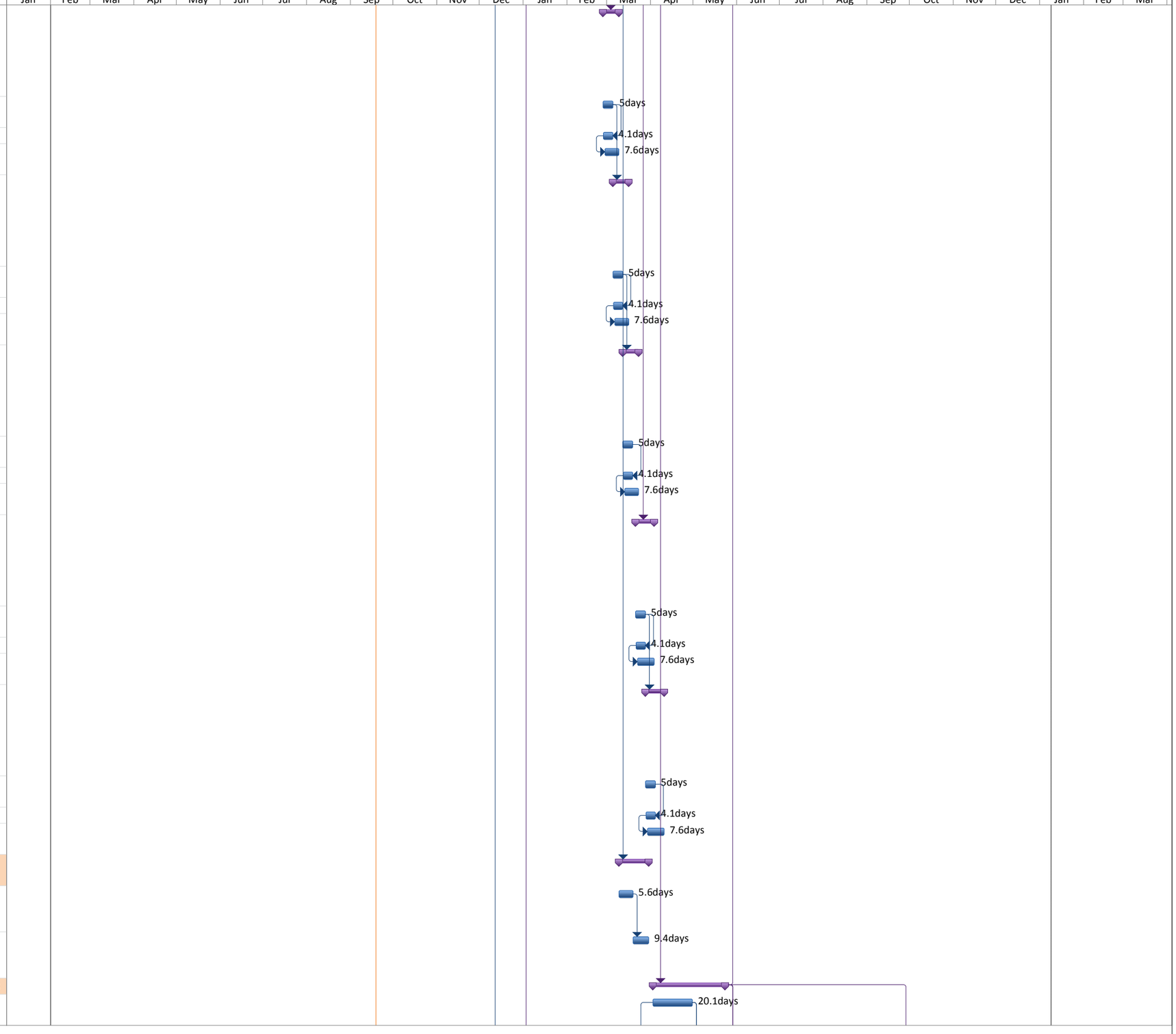
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
82		Concrete placing by pumps	2.7days	Wed 13/12/17	Mon 18/12/17
83		Stripping formwork	2.8days	Wed 27/12/17	Mon 01/01/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 5 cores**	**21.1days**	**Thu 21/12/17**	**Fri 19/01/18**
85		Rebar	5.2days	Thu 21/12/17	Thu 28/12/17
86		Installation of engineered formwork. Height for 2 floors	3.3days	Thu 28/12/17	Wed 03/01/18
87		Concrete placing by pumps	2.7days	Wed 03/01/18	Fri 05/01/18
88		Stripping formwork	2.8days	Tue 16/01/18	Fri 19/01/18
89		**Concrete stair and elevator cores to Level 12, Roof. 5 cores**	**21.1days**	**Wed 10/01/18**	**Fri 09/02/18**
90		Rebar	5.2days	Wed 10/01/18	Thu 18/01/18
91		Installation of engineered formwork	3.3days	Thu 18/01/18	Tue 23/01/18
92		Concrete placing by pumps	2.7days	Tue 23/01/18	Fri 26/01/18
93		Stripping formwork	2.8days	Tue 06/02/18	Fri 09/02/18
94		**Mass Timber Frame c/w columns to Level 02, flat-plate slab to Level 03**	**8.5days**	**Wed 22/11/17**	**Mon 04/12/17**
95		Prefabricated GLT columns	6days	Wed 22/11/17	Thu 30/11/17
96		CLT 2-way panels	2.5days	Thu 30/11/17	Mon 04/12/17
97		**Mass Timber Frame c/w columns to Level 03, flat-plate slab to Level 04**	**8.5days**	**Mon 04/12/17**	**Fri 15/12/17**
98		Prefabricated GLT columns	6days	Mon 04/12/17	Tue 12/12/17
99		CLT 2-way panels	2.5days	Tue 12/12/17	Fri 15/12/17
100		**Mass Timber Frame c/w columns to Level 04, flat-plate slab to Level 05**	**8.5days**	**Fri 15/12/17**	**Wed 27/12/17**
101		Prefabricated GLT columns	6days	Fri 15/12/17	Mon 25/12/17
102		CLT 2-way panels	2.5days	Mon 25/12/17	Wed 27/12/17
103		**Mass Timber Frame c/w columns to Level 05, flat-plate slab to Level 06**	**8.5days**	**Wed 27/12/17**	**Tue 09/01/18**
104		Prefabricated GLT columns	6days	Wed 27/12/17	Thu 04/01/18



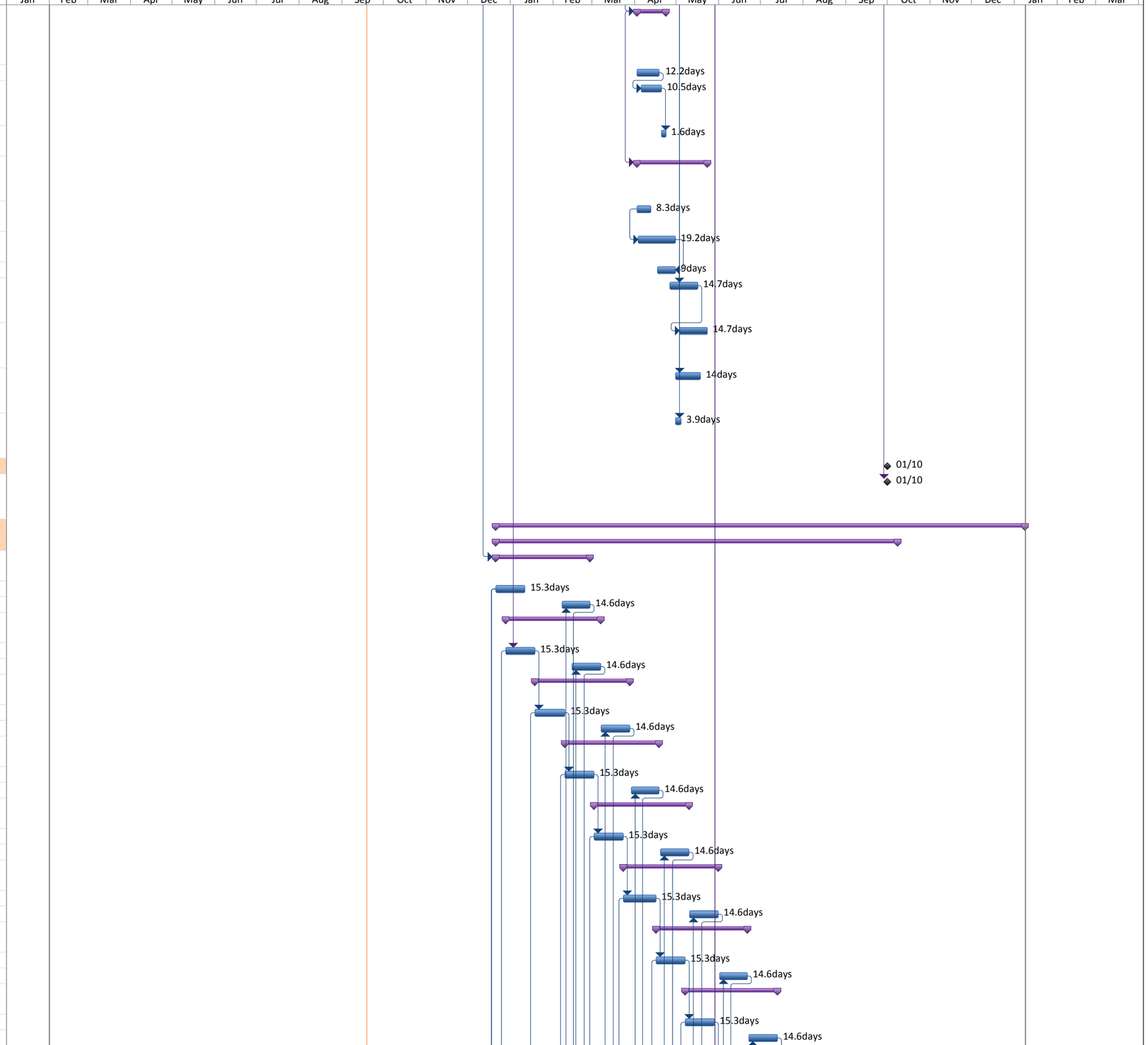
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
105		CLT 2-way panels	2.5days	Thu 04/01/18	Tue 09/01/18
106		**Mass Timber Frame c/w columns to Level 06, flat-plate slab to Level 07**	**8.5days**	**Tue 09/01/18**	**Fri 19/01/18**
107		Prefabricated GLT columns	6days	Tue 09/01/18	Wed 17/01/18
108		CLT 2-way panels	2.5days	Wed 17/01/18	Fri 19/01/18
109		**Mass Timber Frame c/w columns to Level 07, flat-plate slab to Level 08**	**8.5days**	**Fri 19/01/18**	**Thu 01/02/18**
110		Prefabricated GLT columns	6days	Fri 19/01/18	Mon 29/01/18
111		CLT 2-way panels	2.5days	Mon 29/01/18	Thu 01/02/18
112		**Mass Timber Frame c/w columns to Level 08, flat-plate slab to Level 09**	**8.5days**	**Thu 01/02/18**	**Tue 13/02/18**
113		Prefabricated GLT columns	6days	Thu 01/02/18	Fri 09/02/18
114		CLT 2-way panels	2.5days	Fri 09/02/18	Tue 13/02/18
115		**Mass Timber Frame c/w columns to Level 09, flat-plate slab to Level 10**	**8.5days**	**Tue 13/02/18**	**Mon 26/02/18**
116		Prefabricated GLT columns	6days	Tue 13/02/18	Wed 21/02/18
117		CLT 2-way panels	2.5days	Wed 21/02/18	Mon 26/02/18
118		**Mass Timber Frame c/w columns to Level 10, flat-plate slab to Level 11**	**8.5days**	**Mon 26/02/18**	**Thu 08/03/18**
119		Prefabricated GLT columns	6days	Mon 26/02/18	Tue 06/03/18
120		CLT 2-way panels	2.5days	Tue 06/03/18	Thu 08/03/18
121		**Mass Timber Frame c/w columns to Level 11, flat-plate slab to Level 12**	**8.5days**	**Thu 08/03/18**	**Wed 21/03/18**
122		Prefabricated GLT columns	6days	Thu 08/03/18	Fri 16/03/18
123		CLT 2-way panels	2.5days	Fri 16/03/18	Wed 21/03/18
124		**Mass Timber Frame c/w columns to Level 12, flat-plate slab to Roof**	**8.5days**	**Wed 21/03/18**	**Mon 02/04/18**
125		Prefabricated GLT columns	6days	Wed 21/03/18	Thu 29/03/18
126		CLT 2-way panels	2.5days	Thu 29/03/18	Mon 02/04/18
127		**A3 Exterior Enclosure**	**206days**	**Fri 15/12/17**	**Mon 01/10/18**
128		**A32 Walls Above Grade**	**82.5days**	**Fri 15/12/17**	**Tue 10/04/18**

ID	Task Mode	Task Name	Rounded Duration	Start	Finish
129		Level 01. Double glazed curtain wall assembly	60.9days	Fri 15/12/17	Fri 09/03/18
130		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**9.5days**	**Fri 15/12/17**	**Thu 28/12/17**
131		EW-1, EW-2 to Level 02	5days	Fri 15/12/17	Fri 22/12/17
132		Vapour barrier	4.1days	Fri 15/12/17	Fri 22/12/17
133		16 mm GWB wall board	7.6days	Mon 18/12/17	Thu 28/12/17
134		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**9.5days**	**Fri 22/12/17**	**Thu 04/01/18**
135		EW-1, EW-2 to Level 03	5days	Fri 22/12/17	Fri 29/12/17
136		Vapour barrier	4.1days	Fri 22/12/17	Fri 29/12/17
137		16 mm GWB wall board	7.6days	Mon 25/12/17	Thu 04/01/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**9.5days**	**Fri 29/12/17**	**Thu 11/01/18**
139		EW-1, EW-2 to Level 04	5days	Fri 29/12/17	Fri 05/01/18
140		Vapour barrier	4.1days	Fri 29/12/17	Fri 05/01/18
141		16 mm GWB wall board	7.6days	Mon 01/01/18	Thu 11/01/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**9.5days**	**Fri 19/01/18**	**Fri 02/02/18**
143		EW-1, EW-2 to Level 05	5days	Fri 19/01/18	Fri 26/01/18
144		Vapour barrier	4.1days	Mon 22/01/18	Fri 26/01/18
145		16 mm GWB wall board	7.6days	Tue 23/01/18	Fri 02/02/18
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**9.5days**	**Fri 26/01/18**	**Fri 09/02/18**
147		EW-1, EW-2 to Level 06	5days	Fri 26/01/18	Fri 02/02/18
148		Vapour barrier	4.1days	Mon 29/01/18	Fri 02/02/18
149		16 mm GWB wall board	7.6days	Tue 30/01/18	Fri 09/02/18
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**9.5days**	**Fri 02/02/18**	**Fri 16/02/18**
151		EW-1, EW-2 to Level 07	5days	Fri 02/02/18	Fri 09/02/18
152		Vapour barrier	4.1days	Mon 05/02/18	Fri 09/02/18
153		16 mm GWB wall board	7.6days	Tue 06/02/18	Fri 16/02/18

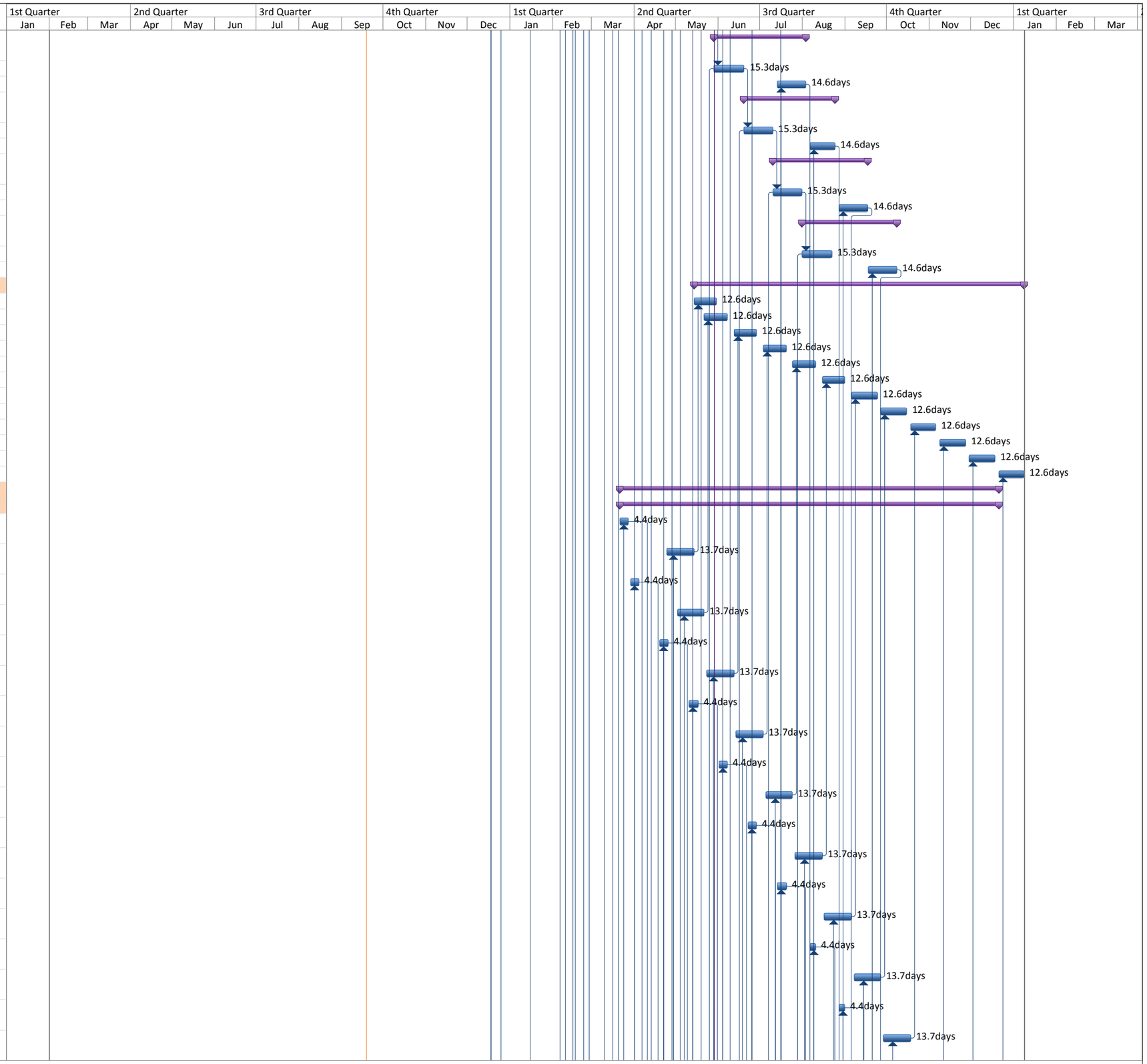
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
154		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**9.5days**	**Mon 26/02/18**	**Fri 09/03/18**
155		EW-1, EW-2 to Level 08	5days	Mon 26/02/18	Mon 05/03/18
156		Vapour barrier	4.1days	Mon 26/02/18	Mon 05/03/18
157		16 mm GWB wall board	7.6days	Tue 27/02/18	Fri 09/03/18
158		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**9.5days**	**Mon 05/03/18**	**Fri 16/03/18**
159		EW-1, EW-2 to Level 09	5days	Mon 05/03/18	Mon 12/03/18
160		Vapour barrier	4.1days	Mon 05/03/18	Mon 12/03/18
161		16 mm GWB wall board	7.6days	Tue 06/03/18	Fri 16/03/18
162		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**9.5days**	**Mon 12/03/18**	**Fri 23/03/18**
163		EW-1, EW-2 to Level 10	5days	Mon 12/03/18	Mon 19/03/18
164		Vapour barrier	4.1days	Mon 12/03/18	Mon 19/03/18
165		16 mm GWB wall board	7.6days	Tue 13/03/18	Fri 23/03/18
166		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**9.5days**	**Wed 21/03/18**	**Tue 03/04/18**
167		EW-1, EW-2 to Level 11	5days	Wed 21/03/18	Wed 28/03/18
168		Vapour barrier	4.1days	Wed 21/03/18	Wed 28/03/18
169		16 mm GWB wall board	7.6days	Thu 22/03/18	Tue 03/04/18
170		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**9.5days**	**Wed 28/03/18**	**Tue 10/04/18**
171		EW-1, EW-2 to Level 12	5days	Wed 28/03/18	Wed 04/04/18
172		Vapour barrier	4.1days	Wed 28/03/18	Wed 04/04/18
173		16 mm GWB wall board	7.6days	Thu 29/03/18	Tue 10/04/18
174		**A33 Windows and entrancies**	**15days**	**Fri 09/03/18**	**Fri 30/03/18**
175		Glazed vestibule door c/w frame, standard hardware	5.6days	Fri 09/03/18	Mon 19/03/18
176		Exterior metal doors c/w frame and hardware	9.4days	Mon 19/03/18	Fri 30/03/18
177		**A34 Roof Coverings**	**37.3days**	**Mon 02/04/18**	**Wed 23/05/18**
178		Hardscape. Precast concrete pavers	20.1days	Mon 02/04/18	Mon 30/04/18



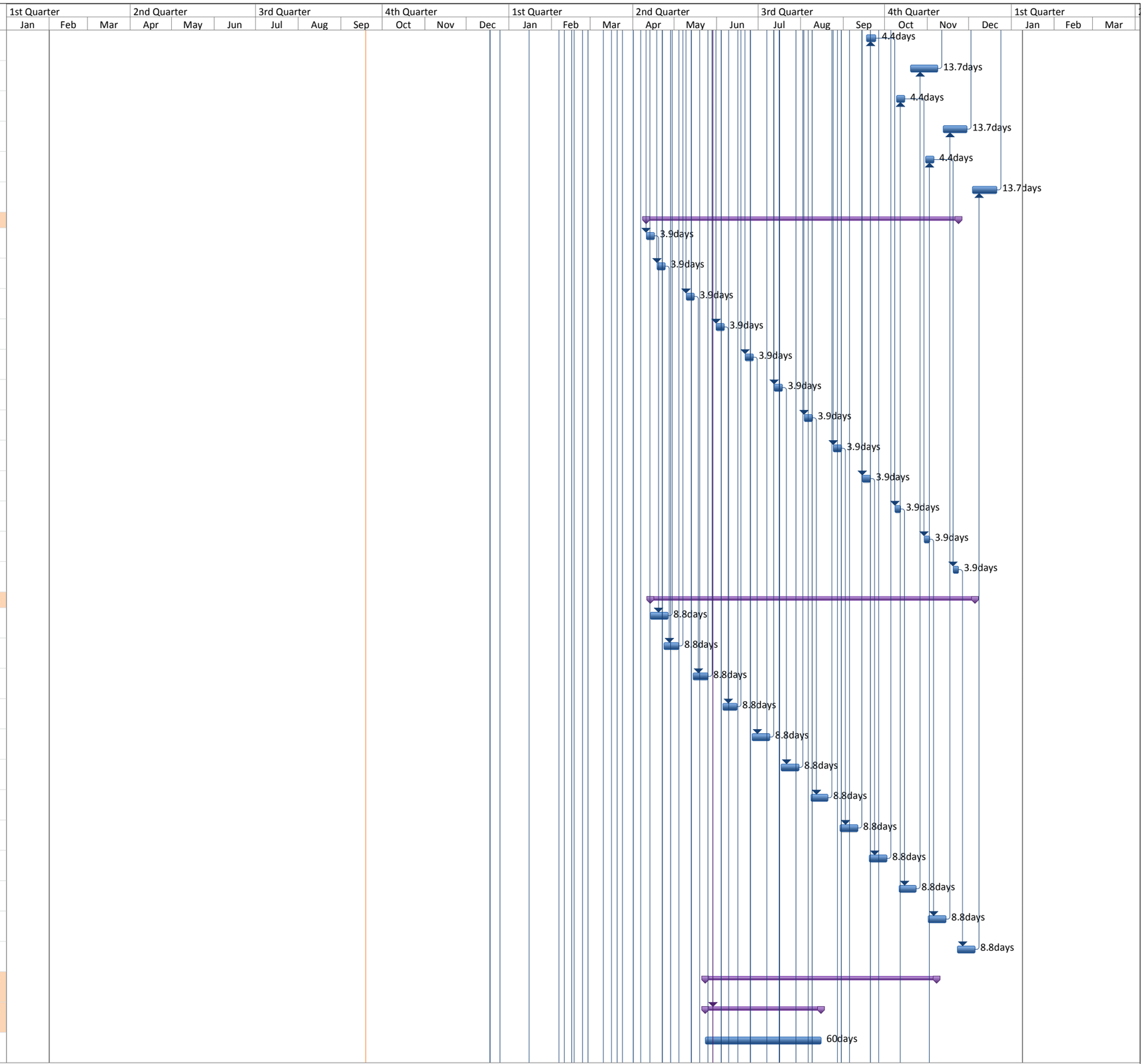
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
179		**Greenscape. Landscaping, indigenous plants + grasses**	**15.2days**	**Mon 02/04/18**	**Mon 23/04/18**
180		Planting beds	12.2days	Mon 02/04/18	Wed 18/04/18
181		Top soil placement and grading by hand	10.5days	Thu 05/04/18	Fri 20/04/18
182		Mechanical seeding	1.6days	Fri 20/04/18	Mon 23/04/18
183		**Modified bituminous membrane**	**37.3days**	**Mon 02/04/18**	**Wed 23/05/18**
184		6 mm vapour barier	8.3days	Mon 02/04/18	Thu 12/04/18
185		150 mm rigid insulation	19.2days	Tue 03/04/18	Mon 30/04/18
186		12 mm plywood	9days	Tue 17/04/18	Mon 30/04/18
187		Bituminous membrane base layer	14.7days	Thu 26/04/18	Wed 16/05/18
188		Bituminous membrane finish layer	14.7days	Thu 03/05/18	Wed 23/05/18
189		Bikespace. Engineered wood fibre	14days	Mon 30/04/18	Fri 18/05/18
190		Gymspace. Engineered wood fibre	3.9days	Mon 30/04/18	Fri 04/05/18
191		**A35 Projections**	**0days**	**Mon 01/10/18**	**Mon 01/10/18**
192		All projections included in relative sections	0days	Mon 01/10/18	Mon 01/10/18
193		**B1 Partitions and Doors**	**273.7days**	**Thu 21/12/17**	**Tue 08/01/19**
194		**B11 Partitions**	**207.4days**	**Thu 21/12/17**	**Mon 08/10/18**
195		**GWB partitions to Level 01**	**48.6days**	**Thu 21/12/17**	**Tue 27/02/18**
196		Metal studs	15.3days	Thu 21/12/17	Thu 11/01/18
197		GWB	14.6days	Wed 07/02/18	Tue 27/02/18
198		**GWB partitions to Level 02**	**48.6days**	**Thu 28/12/17**	**Wed 07/03/18**
199		Metal studs	15.3days	Thu 28/12/17	Thu 18/01/18
200		GWB	14.6days	Wed 14/02/18	Wed 07/03/18
201		**GWB partitions to Level 03**	**48.6days**	**Thu 18/01/18**	**Wed 28/03/18**
202		Metal studs	15.3days	Thu 18/01/18	Fri 09/02/18
203		GWB	14.6days	Wed 07/03/18	Wed 28/03/18
204		**GWB partitions to Level 04**	**48.6days**	**Fri 09/02/18**	**Wed 18/04/18**
205		Metal studs	15.3days	Fri 09/02/18	Fri 02/03/18
206		GWB	14.6days	Thu 29/03/18	Wed 18/04/18
207		**GWB partitions to Level 05**	**48.6days**	**Fri 02/03/18**	**Thu 10/05/18**
208		Metal studs	15.3days	Fri 02/03/18	Fri 23/03/18
209		GWB	14.6days	Thu 19/04/18	Thu 10/05/18
210		**GWB partitions to Level 06**	**48.6days**	**Fri 23/03/18**	**Thu 31/05/18**
211		Metal studs	15.3days	Fri 23/03/18	Mon 16/04/18
212		GWB	14.6days	Thu 10/05/18	Thu 31/05/18
213		**GWB partitions to Level 07**	**48.6days**	**Mon 16/04/18**	**Thu 21/06/18**
214		Metal studs	15.3days	Mon 16/04/18	Mon 07/05/18
215		GWB	14.6days	Fri 01/06/18	Thu 21/06/18
216		**GWB partitions to Level 08**	**48.6days**	**Mon 07/05/18**	**Fri 13/07/18**
217		Metal studs	15.3days	Mon 07/05/18	Mon 28/05/18
218		GWB	14.6days	Fri 22/06/18	Fri 13/07/18



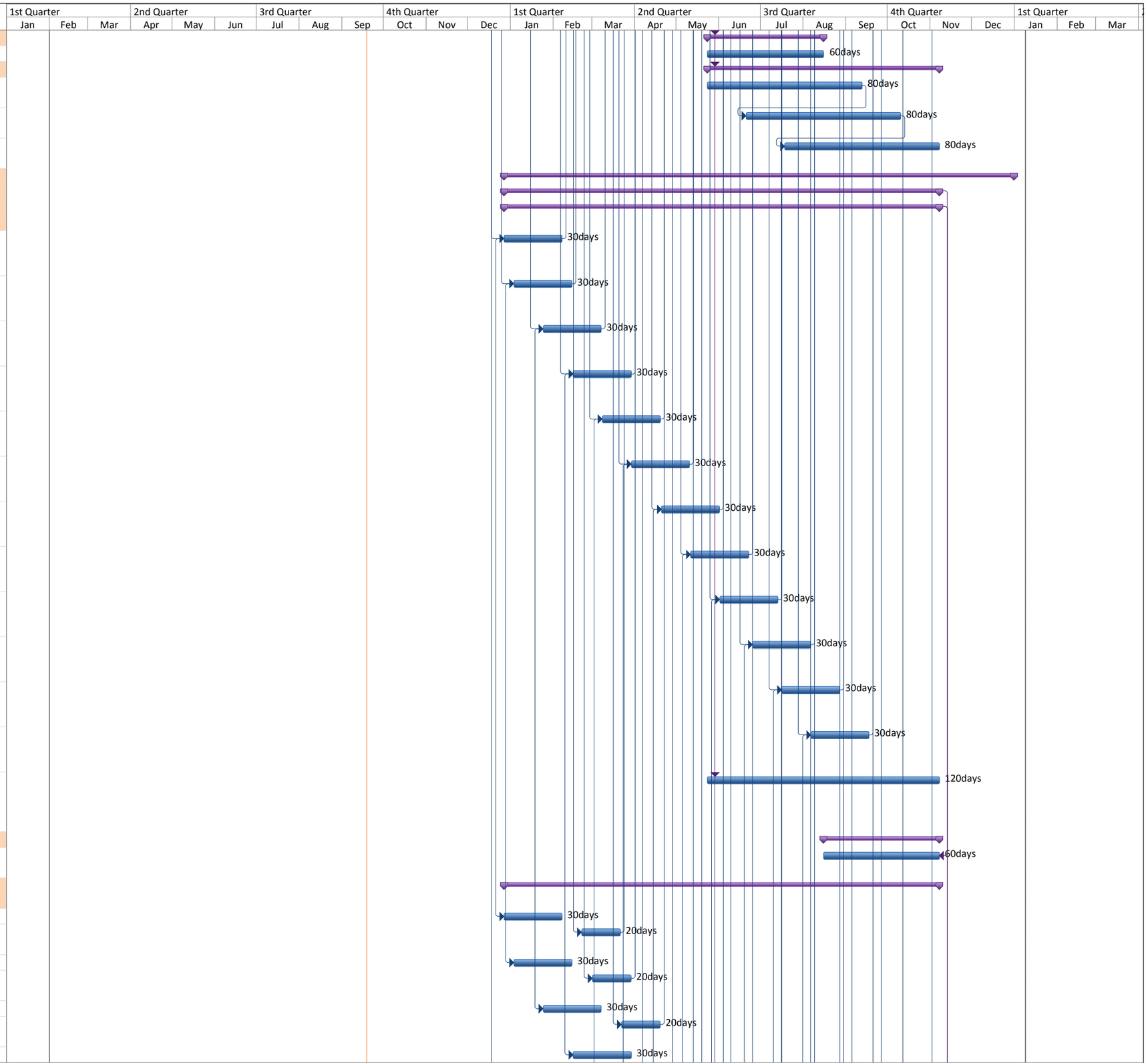
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
219		**GWB partitions to Level 09**	**48.6days**	**Mon 28/05/18**	**Fri 03/08/18**
220		Metal studs	15.3days	Mon 28/05/18	Tue 19/06/18
221		GWB	14.6days	Fri 13/07/18	Fri 03/08/18
222		**GWB partitions to Level 10**	**48.6days**	**Tue 19/06/18**	**Fri 24/08/18**
223		Metal studs	15.3days	Tue 19/06/18	Tue 10/07/18
224		GWB	14.6days	Mon 06/08/18	Fri 24/08/18
225		**GWB partitions to Level 11**	**48.6days**	**Tue 10/07/18**	**Mon 17/09/18**
226		Metal studs	15.3days	Tue 10/07/18	Tue 31/07/18
227		GWB	14.6days	Mon 27/08/18	Mon 17/09/18
228		**GWB partitions to Level 12**	**48.6days**	**Tue 31/07/18**	**Mon 08/10/18**
229		Metal studs	15.3days	Tue 31/07/18	Wed 22/08/18
230		GWB	14.6days	Mon 17/09/18	Mon 08/10/18
231		**B12 Doors**	**171.4days**	**Mon 14/05/18**	**Tue 08/01/19**
232		Doors to Level 01	12.6days	Mon 14/05/18	Wed 30/05/18
233		Doors to Level 02	12.6days	Mon 21/05/18	Thu 07/06/18
234		Doors to Level 03	12.6days	Tue 12/06/18	Thu 28/06/18
235		Doors to Level 04	12.6days	Tue 03/07/18	Fri 20/07/18
236		Doors to Level 05	12.6days	Tue 24/07/18	Fri 10/08/18
237		Doors to Level 06	12.6days	Wed 15/08/18	Fri 31/08/18
238		Doors to Level 07	12.6days	Wed 05/09/18	Mon 24/09/18
239		Doors to Level 08	12.6days	Wed 26/09/18	Mon 15/10/18
240		Doors to Level 09	12.6days	Thu 18/10/18	Mon 05/11/18
241		Doors to Level 10	12.6days	Thu 08/11/18	Tue 27/11/18
242		Doors to Level 11	12.6days	Thu 29/11/18	Tue 18/12/18
243		Doors to Level 12	12.6days	Fri 21/12/18	Tue 08/01/19
244		**B2 Finishes**	**196.6days**	**Wed 21/03/18**	**Fri 21/12/18**
245		**B21 Floor Finishes**	**196.6days**	**Wed 21/03/18**	**Fri 21/12/18**
246		50mm concrete topping to Level 01	4.4days	Wed 21/03/18	Tue 27/03/18
247		Floor finishes to Level 01	13.7days	Tue 24/04/18	Mon 14/05/18
248		50mm concrete topping to Level 02	4.4days	Thu 29/03/18	Wed 04/04/18
249		Floor finishes to Level 02	13.7days	Wed 02/05/18	Mon 21/05/18
250		50mm concrete topping to Level 03	4.4days	Thu 19/04/18	Wed 25/04/18
251		Floor finishes to Level 03	13.7days	Wed 23/05/18	Tue 12/06/18
252		50mm concrete topping to Level 04	4.4days	Thu 10/05/18	Thu 17/05/18
253		Floor finishes to Level 04	13.7days	Wed 13/06/18	Tue 03/07/18
254		50mm concrete topping to Level 05	4.4days	Fri 01/06/18	Thu 07/06/18
255		Floor finishes to Level 05	13.7days	Thu 05/07/18	Tue 24/07/18
256		50mm concrete topping to Level 06	4.4days	Fri 22/06/18	Thu 28/06/18
257		Floor finishes to Level 06	13.7days	Thu 26/07/18	Wed 15/08/18
258		50mm concrete topping to Level 07	4.4days	Fri 13/07/18	Fri 20/07/18
259		Floor finishes to Level 07	13.7days	Thu 16/08/18	Wed 05/09/18
260		50mm concrete topping to Level 08	4.4days	Mon 06/08/18	Fri 10/08/18
261		Floor finishes to Level 08	13.7days	Fri 07/09/18	Wed 26/09/18
262		50mm concrete topping to Level 09	4.4days	Mon 27/08/18	Fri 31/08/18
263		Floor finishes to Level 09	13.7days	Fri 28/09/18	Thu 18/10/18



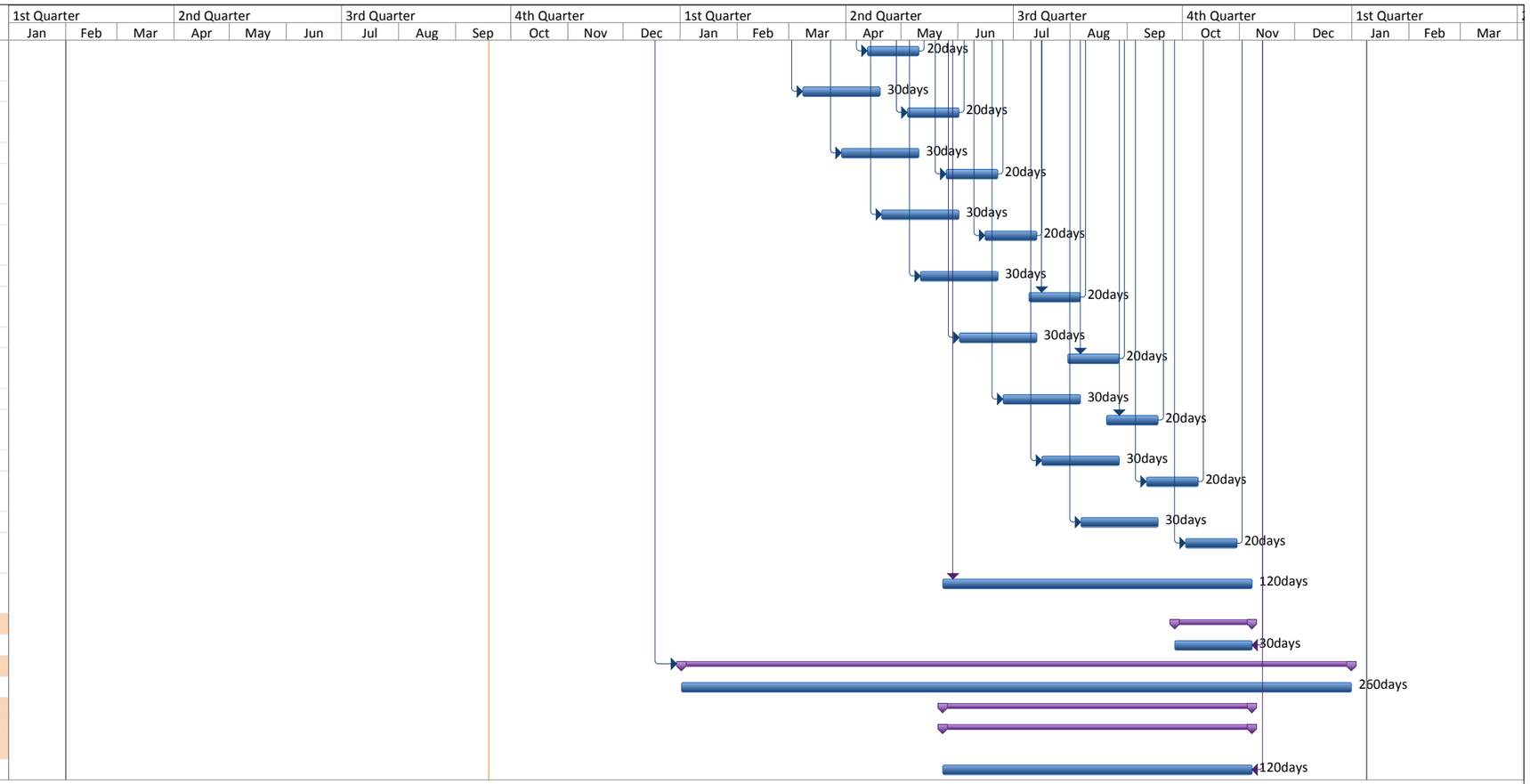
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
264		50mm concrete topping to Level 10	4.4days	Mon 17/09/18	Mon 24/09/18
265		Floor finishes to Level 10	13.7days	Fri 19/10/18	Thu 08/11/18
266		50mm concrete topping to Level 11	4.4days	Tue 09/10/18	Mon 15/10/18
267		Floor finishes to Level 11	13.7days	Mon 12/11/18	Thu 29/11/18
268		50mm concrete topping to Level 12	4.4days	Tue 30/10/18	Mon 05/11/18
269		Floor finishes to Level 12	13.7days	Mon 03/12/18	Fri 21/12/18
270		**B22 Ceiling Finishes**	**162.8days**	**Tue 10/04/18**	**Fri 23/11/18**
271		Ceiling finishes to Level 01	3.9days	Tue 10/04/18	Mon 16/04/18
272		Ceiling finishes to Level 02	3.9days	Wed 18/04/18	Tue 24/04/18
273		Ceiling finishes to Level 03	3.9days	Wed 09/05/18	Tue 15/05/18
274		Ceiling finishes to Level 04	3.9days	Thu 31/05/18	Wed 06/06/18
275		Ceiling finishes to Level 05	3.9days	Thu 21/06/18	Wed 27/06/18
276		Ceiling finishes to Level 06	3.9days	Thu 12/07/18	Wed 18/07/18
277		Ceiling finishes to Level 07	3.9days	Fri 03/08/18	Thu 09/08/18
278		Ceiling finishes to Level 08	3.9days	Fri 24/08/18	Thu 30/08/18
279		Ceiling finishes to Level 09	3.9days	Fri 14/09/18	Thu 20/09/18
280		Ceiling finishes to Level 10	3.9days	Mon 08/10/18	Fri 12/10/18
281		Ceiling finishes to Level 11	3.9days	Mon 29/10/18	Fri 02/11/18
282		Ceiling finishes to Level 12	3.9days	Mon 19/11/18	Fri 23/11/18
283		**B23 Wall Finishes**	**167.6days**	**Fri 13/04/18**	**Wed 05/12/18**
284		Wall finishes to Level 01	8.8days	Fri 13/04/18	Thu 26/04/18
285		Wall finishes to Level 02	8.8days	Mon 23/04/18	Fri 04/05/18
286		Wall finishes to Level 03	8.8days	Mon 14/05/18	Fri 25/05/18
287		Wall finishes to Level 04	8.8days	Tue 05/06/18	Fri 15/06/18
288		Wall finishes to Level 05	8.8days	Tue 26/06/18	Mon 09/07/18
289		Wall finishes to Level 06	8.8days	Tue 17/07/18	Mon 30/07/18
290		Wall finishes to Level 07	8.8days	Wed 08/08/18	Mon 20/08/18
291		Wall finishes to Level 08	8.8days	Wed 29/08/18	Tue 11/09/18
292		Wall finishes to Level 09	8.8days	Wed 19/09/18	Tue 02/10/18
293		Wall finishes to Level 10	8.8days	Thu 11/10/18	Tue 23/10/18
294		Wall finishes to Level 11	8.8days	Thu 01/11/18	Wed 14/11/18
295		Wall finishes to Level 12	8.8days	Thu 22/11/18	Wed 05/12/18
296		**B3 Fittings and Equipment**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
297		**B31 Fittings and Fixtures**	**60days**	**Wed 23/05/18**	**Wed 15/08/18**
298		Fittings and Fixtures	60days	Wed 23/05/18	Wed 15/08/18



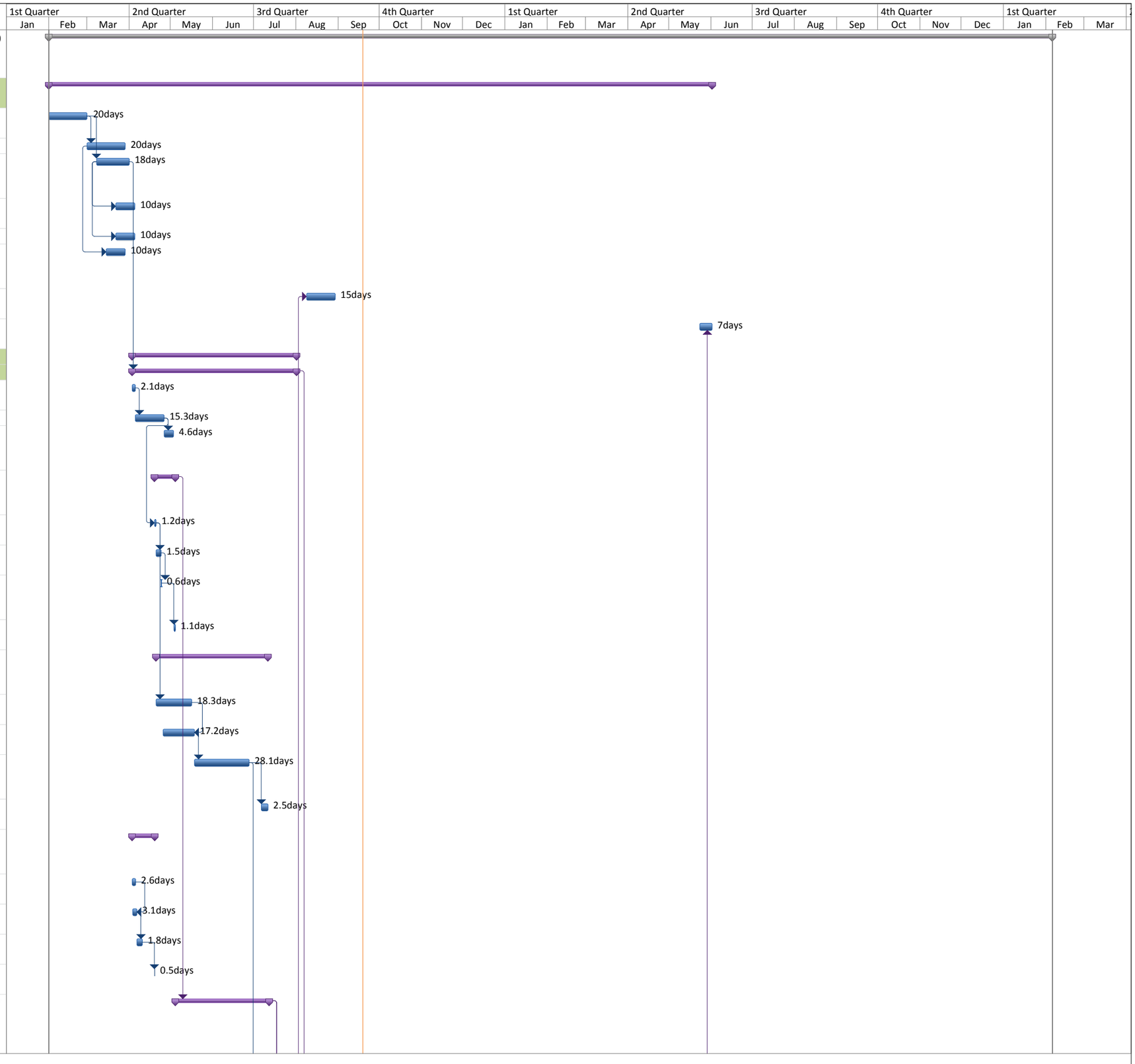
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
299		**B32 Equipment**	**60days**	**Wed 23/05/18**	**Wed 15/08/18**
300		Equipment	60days	Wed 23/05/18	Wed 15/08/18
301		**B33 Elevators**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
302		Elevators to section 01	80days	Wed 23/05/18	Wed 12/09/18
303		Elevators to section 02	80days	Wed 20/06/18	Wed 10/10/18
304		Elevators to section 03	80days	Wed 18/07/18	Wed 07/11/18
305		**C. Services**	**263.8days**	**Wed 27/12/17**	**Mon 31/12/18**
306		**C1. Mechanical Services**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
307		**C11. Plumbing and Drainage**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
308		Mechanical elements to Level 01	30days	Wed 27/12/17	Wed 07/02/18
309		Mechanical elements to Level 02	30days	Wed 03/01/18	Wed 14/02/18
310		Mechanical elements to Level 03	30days	Wed 24/01/18	Wed 07/03/18
311		Mechanical elements to Level 04	30days	Thu 15/02/18	Thu 29/03/18
312		Mechanical elements to Level 05	30days	Thu 08/03/18	Thu 19/04/18
313		Mechanical elements to Level 06	30days	Thu 29/03/18	Thu 10/05/18
314		Mechanical elements to Level 07	30days	Fri 20/04/18	Fri 01/06/18
315		Mechanical elements to Level 08	30days	Fri 11/05/18	Fri 22/06/18
316		Mechanical elements to Level 09	30days	Fri 01/06/18	Fri 13/07/18
317		Mechanical elements to Level 10	30days	Mon 25/06/18	Mon 06/08/18
318		Mechanical elements to Level 11	30days	Mon 16/07/18	Mon 27/08/18
319		Mechanical elements to Level 12	30days	Mon 06/08/18	Mon 17/09/18
320		Mechanical elements other, include mechanical rooms	120days	Wed 23/05/18	Wed 07/11/18
321		**C12. Fire Protection**	**60days**	**Wed 15/08/18**	**Wed 07/11/18**
322		Fire protection services	60days	Wed 15/08/18	Wed 07/11/18
323		**C13. HVAC. Radiant floor heating.**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
324		HVAC to Level 01	30days	Wed 27/12/17	Wed 07/02/18
325		Radiant floor heating to Level 01	20days	Wed 21/02/18	Wed 21/03/18
326		HVAC to Level 02	30days	Wed 03/01/18	Wed 14/02/18
327		Radiant floor heating to Level 02	20days	Thu 01/03/18	Thu 29/03/18
328		HVAC to Level 03	30days	Wed 24/01/18	Wed 07/03/18
329		Radiant floor heating to Level 03	20days	Thu 22/03/18	Thu 19/04/18
330		HVAC to Level 04	30days	Thu 15/02/18	Thu 29/03/18



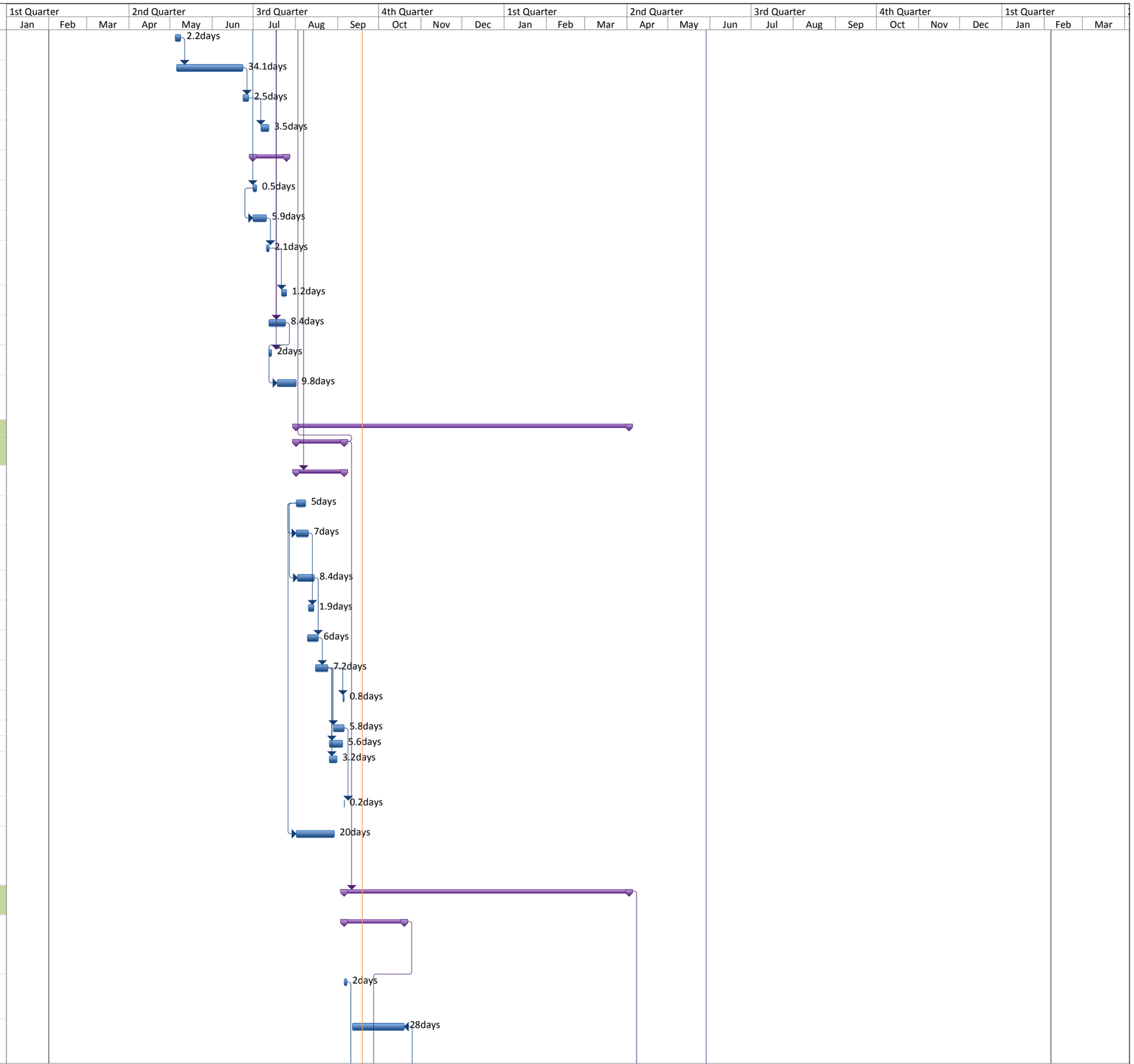
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
331		Radiant floor heating to Level 04	20days	Thu 12/04/18	Thu 10/05/18
332		HVAC to Level 05	30days	Thu 08/03/18	Thu 19/04/18
333		Radiant floor heating to Level 05	20days	Fri 04/05/18	Fri 01/06/18
334		HVAC to Level 06	30days	Thu 29/03/18	Thu 10/05/18
335		Radiant floor heating to Level 06	20days	Fri 25/05/18	Fri 22/06/18
336		HVAC to Level 07	30days	Fri 20/04/18	Fri 01/06/18
337		Radiant floor heating to Level 07	20days	Fri 15/06/18	Fri 13/07/18
338		HVAC to Level 08	30days	Fri 11/05/18	Fri 22/06/18
339		Radiant floor heating to Level 08	20days	Mon 09/07/18	Mon 06/08/18
340		HVAC to Level 09	30days	Fri 01/06/18	Fri 13/07/18
341		Radiant floor heating to Level 09	20days	Mon 30/07/18	Mon 27/08/18
342		HVAC to Level 10	30days	Mon 25/06/18	Mon 06/08/18
343		Radiant floor heating to Level 10	20days	Mon 20/08/18	Mon 17/09/18
344		HVAC to Level 11	30days	Mon 16/07/18	Mon 27/08/18
345		Radiant floor heating to Level 11	20days	Tue 11/09/18	Tue 09/10/18
346		HVAC to Level 12	30days	Mon 06/08/18	Mon 17/09/18
347		Radiant floor heating to Level 12	20days	Tue 02/10/18	Tue 30/10/18
348		Other HVAC to the rest of builduing	120days	Wed 23/05/18	Wed 07/11/18
349		**C14. Controls**	**30days**	**Wed 26/09/18**	**Wed 07/11/18**
350		DDC Controls	30days	Wed 26/09/18	Wed 07/11/18
351		**C2. Elecrtical Services**	**260days**	**Mon 01/01/18**	**Mon 31/12/18**
352		Electrical Services	260days	Mon 01/01/18	Mon 31/12/18
353		**D1. Site Work**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
354		**D11. Site Development**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
355		Site work	120days	Wed 23/05/18	Wed 07/11/18



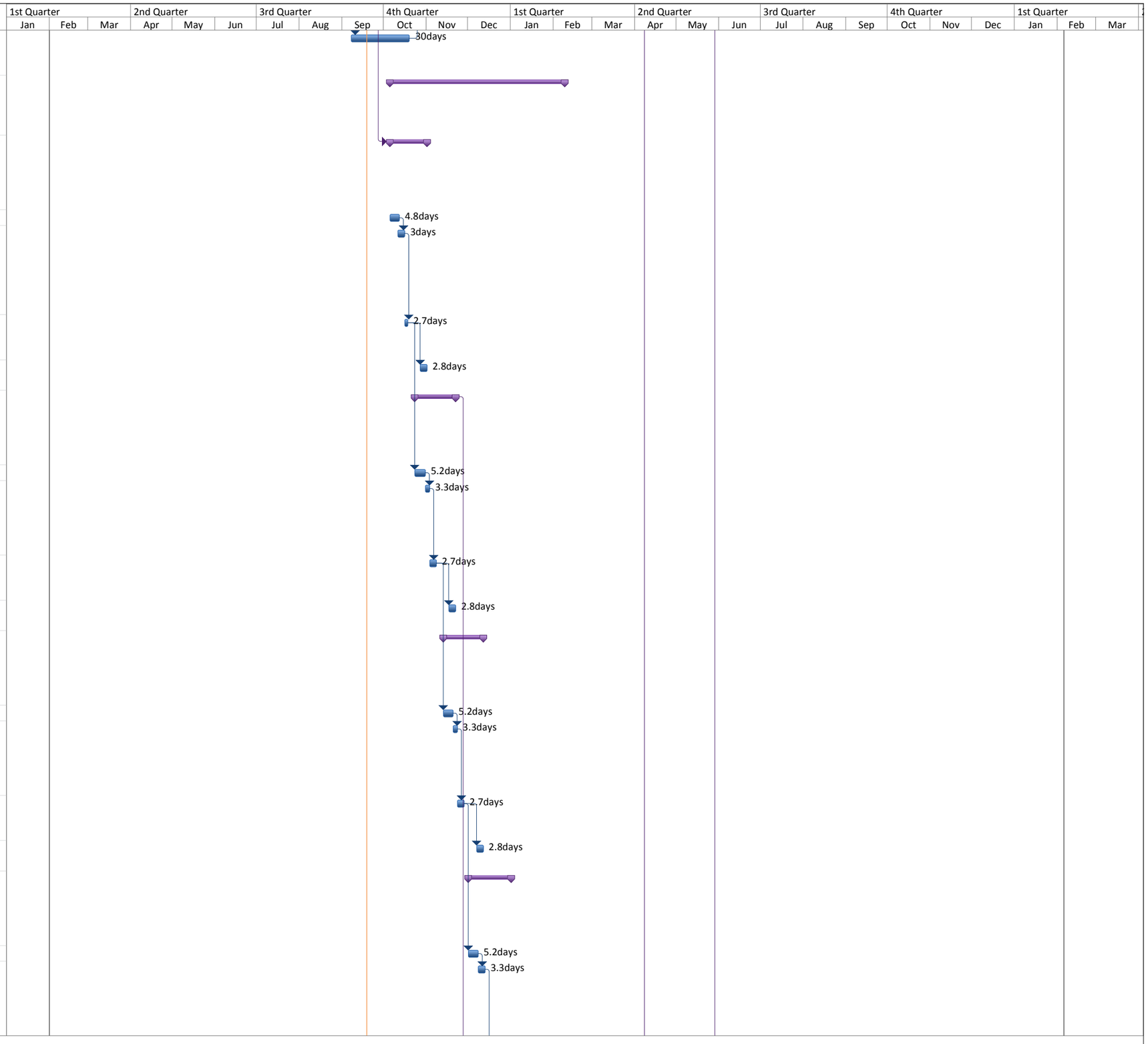
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Encapsulated Mass Timber Building - Residential**	**524.7days**	**Wed 01/02/17**	**Tue 05/02/19**
1		**General Conditions and Management**	**347.8days**	**Wed 01/02/17**	**Fri 01/06/18**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 2 cranes	15days	Tue 08/08/17	Tue 29/08/17
9		Tower cranes dismantle - 2 cranes	7days	Wed 23/05/18	Fri 01/06/18
10		**A1 Substructure**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
11		**A11 Foundations**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
12		Clearing and grubbing	2.1days	Mon 03/04/17	Wed 05/04/17
13		Excavation	15.3days	Wed 05/04/17	Wed 26/04/17
14		Perimeter drain c/w filter socket and granular cover	4.6days	Wed 26/04/17	Wed 03/05/17
15		**Reinforced concrete strip footing**	**11.5days**	**Wed 19/04/17**	**Thu 04/05/17**
16		Concrete reinforcement	1.2days	Wed 19/04/17	Thu 20/04/17
17		Formwork to sides	1.5days	Thu 20/04/17	Mon 24/04/17
18		Concrete placing by pumps	0.6days	Mon 24/04/17	Mon 24/04/17
19		Stripping formwork	1.1days	Wed 03/05/17	Thu 04/05/17
20		**Reinforced concrete pad footing to columns**	**57.9days**	**Thu 20/04/17**	**Tue 11/07/17**
21		Concrete reinforcement	18.3days	Thu 20/04/17	Tue 16/05/17
22		Formwork to sides	17.2days	Tue 25/04/17	Thu 18/05/17
23		Concrete placing by pumps	28.1days	Thu 18/05/17	Tue 27/06/17
24		Stripping formwork	2.5days	Thu 06/07/17	Tue 11/07/17
25		**Raft slab below elevator & stair cores**	**12.8days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2.6days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.8days	Thu 06/04/17	Mon 10/04/17
29		Stripping formwork	0.5days	Wed 19/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**48.3days**	**Thu 04/05/17**	**Wed 12/07/17**



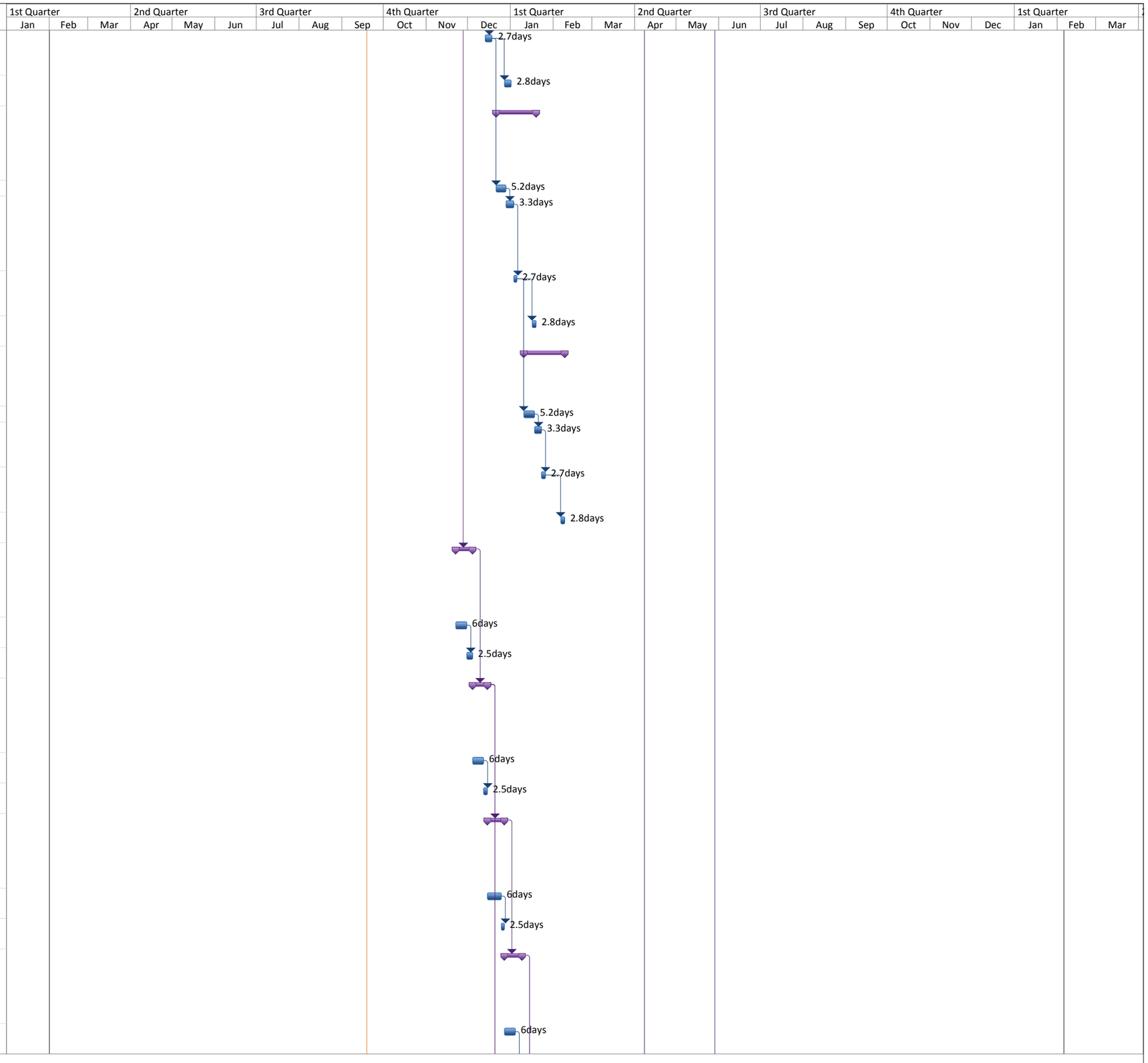
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
31		Concrete reinforcement	2.2days	Thu 04/05/17	Mon 08/05/17
32		Formwork to sides	34.1days	Fri 05/05/17	Fri 23/06/17
33		Concrete placing by pump	2.5days	Fri 23/06/17	Tue 27/06/17
34		Stripping formwork	3.5days	Thu 06/07/17	Wed 12/07/17
35		**Piers. Reinforced concrete**	**16.2days**	**Fri 30/06/17**	**Tue 25/07/17**
36		Concrete reinforcement	0.5days	Fri 30/06/17	Mon 03/07/17
37		Formwork to sides	5.9days	Fri 30/06/17	Mon 10/07/17
38		Concrete placing by pumps	2.1days	Mon 10/07/17	Wed 12/07/17
39		Stripping formwork	1.2days	Fri 21/07/17	Tue 25/07/17
40		Extraover for dampproofing	8.4days	Wed 12/07/17	Mon 24/07/17
41		Allowance for expansion joint	2days	Wed 12/07/17	Fri 14/07/17
42		Backfill excavated area c/w compaction	9.8days	Tue 18/07/17	Tue 01/08/17
43		**A2 Structure**	**174.2days**	**Tue 01/08/17**	**Mon 02/04/18**
44		**A21 Lowest Floor Construction**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
45		**250 mm reinforced concrete slab**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
46		6 mm vapour barrier	5days	Tue 01/08/17	Tue 08/08/17
47		300 mm granular fill compacted slab	7days	Tue 01/08/17	Thu 10/08/17
48		75 mm rigid insulation	8.4days	Wed 02/08/17	Mon 14/08/17
49		Formwork to opennings	1.9days	Thu 10/08/17	Mon 14/08/17
50		Concrete reinforcement	6days	Wed 09/08/17	Thu 17/08/17
51		Concrete placing by pump	7.2days	Tue 15/08/17	Thu 24/08/17
52		Stripping formwork	0.8days	Mon 04/09/17	Tue 05/09/17
53		Finishing	5.8days	Mon 28/08/17	Tue 05/09/17
54		Water curing	5.6days	Fri 25/08/17	Mon 04/09/17
55		Sheet membrane curing	3.2days	Fri 25/08/17	Thu 31/08/17
56		Sawcut control joints	0.2days	Tue 05/09/17	Tue 05/09/17
57		Civil works. General civil infrastructure allowance	20days	Tue 01/08/17	Tue 29/08/17
58		**A22 Upper Floor Construction**	**148.6days**	**Tue 05/09/17**	**Mon 02/04/18**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**32days**	**Tue 05/09/17**	**Thu 19/10/17**
60		Concrete columns to Level 01	2days	Tue 05/09/17	Thu 07/09/17
61		Concrete stair and elevators cores to Level 01	28days	Mon 11/09/17	Thu 19/10/17



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
62		Concrete suspended slab to Level 02	30days	Thu 07/09/17	Thu 19/10/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**90.1days**	**Thu 05/10/17**	**Fri 09/02/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 5 cores**	**18.8days**	**Thu 05/10/17**	**Wed 01/11/17**
65		Rebar	4.8days	Thu 05/10/17	Thu 12/10/17
66		Installation of customed engineered formwork. Height for 2 floors	3days	Wed 11/10/17	Mon 16/10/17
67		Concrete placing by pumps	2.7days	Mon 16/10/17	Wed 18/10/17
68		Stripping formwork	2.8days	Fri 27/10/17	Wed 01/11/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 5 cores**	**21.1days**	**Mon 23/10/17**	**Wed 22/11/17**
70		Rebar	5.2days	Mon 23/10/17	Tue 31/10/17
71		Installation of engineered formwork. Height for 2 floors	3.3days	Tue 31/10/17	Fri 03/11/17
72		Concrete placing by pumps	2.7days	Fri 03/11/17	Wed 08/11/17
73		Stripping formwork	2.8days	Fri 17/11/17	Wed 22/11/17
74		**Concrete stair and elevator cores to Level 06, Level 07. 5 cores**	**21.1days**	**Mon 13/11/17**	**Tue 12/12/17**
75		Rebar	5.2days	Mon 13/11/17	Mon 20/11/17
76		Installation of engineered formwork. Height for 2 floors	3.3days	Mon 20/11/17	Thu 23/11/17
77		Concrete placing by pumps	2.7days	Thu 23/11/17	Tue 28/11/17
78		Stripping formwork	2.8days	Thu 07/12/17	Tue 12/12/17
79		**Concrete stair and elevator cores to Level 08, Level 09. 5 cores**	**21.1days**	**Fri 01/12/17**	**Mon 01/01/18**
80		Rebar	5.2days	Fri 01/12/17	Fri 08/12/17
81		Installation of engineered formwork. Height for 2 floors	3.3days	Fri 08/12/17	Wed 13/12/17



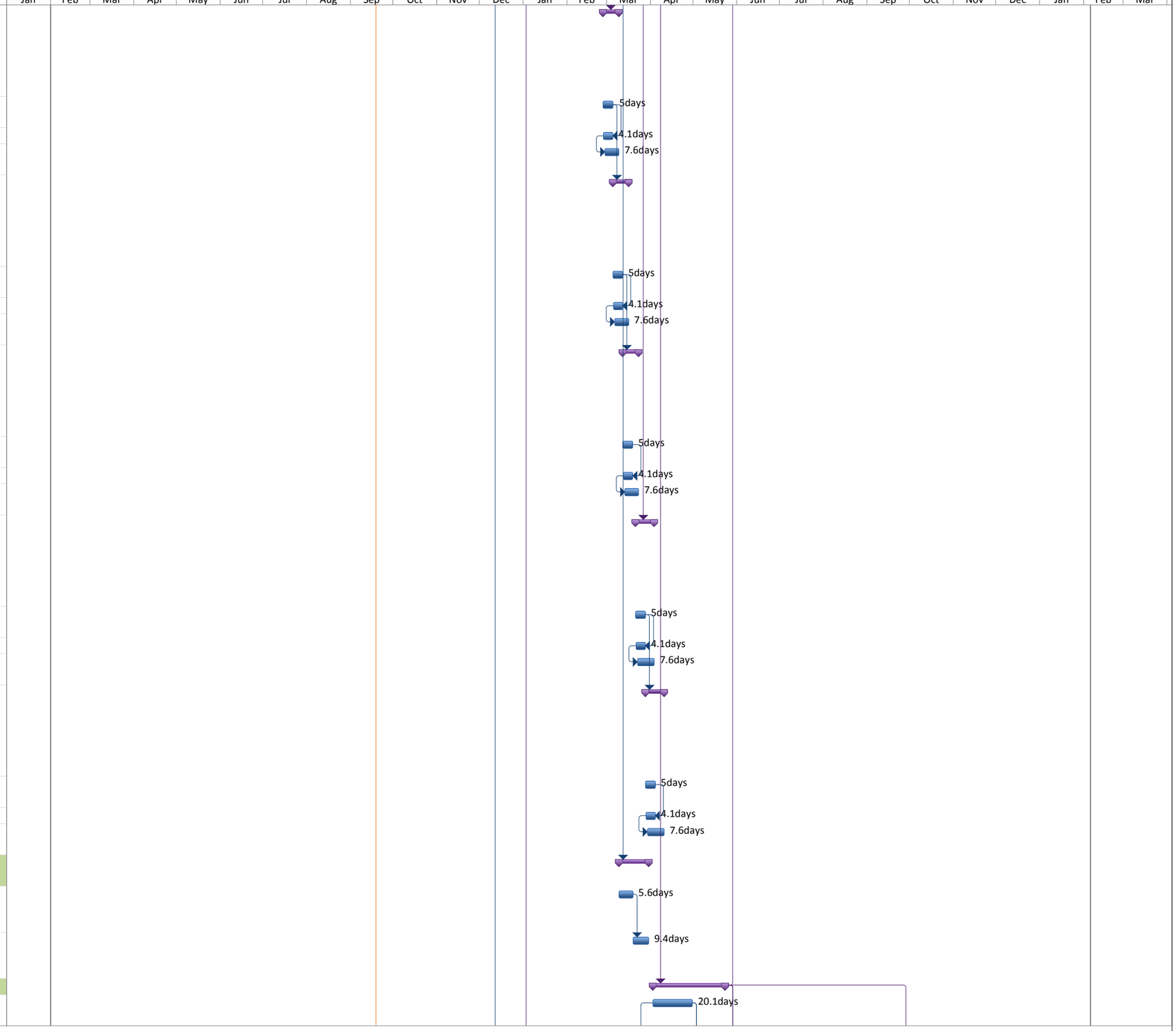
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
82		Concrete placing by pumps	2.7days	Wed 13/12/17	Mon 18/12/17
83		Stripping formwork	2.8days	Wed 27/12/17	Mon 01/01/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 5 cores**	**21.1days**	**Thu 21/12/17**	**Fri 19/01/18**
85		Rebar	5.2days	Thu 21/12/17	Thu 28/12/17
86		Installation of engineered formwork. Height for 2 floors	3.3days	Thu 28/12/17	Wed 03/01/18
87		Concrete placing by pumps	2.7days	Wed 03/01/18	Fri 05/01/18
88		Stripping formwork	2.8days	Tue 16/01/18	Fri 19/01/18
89		**Concrete stair and elevator cores to Level 12, Roof. 5 cores**	**21.1days**	**Wed 10/01/18**	**Fri 09/02/18**
90		Rebar	5.2days	Wed 10/01/18	Thu 18/01/18
91		Installation of engineered formwork	3.3days	Thu 18/01/18	Tue 23/01/18
92		Concrete placing by pumps	2.7days	Tue 23/01/18	Fri 26/01/18
93		Stripping formwork	2.8days	Tue 06/02/18	Fri 09/02/18
94		**Mass Timber Frame c/w columns to Level 02, flat-plate slab to Level 03**	**8.5days**	**Wed 22/11/17**	**Mon 04/12/17**
95		Prefabricated GLT columns	6days	Wed 22/11/17	Thu 30/11/17
96		CLT 2-way panels	2.5days	Thu 30/11/17	Mon 04/12/17
97		**Mass Timber Frame c/w columns to Level 03, flat-plate slab to Level 04**	**8.5days**	**Mon 04/12/17**	**Fri 15/12/17**
98		Prefabricated GLT columns	6days	Mon 04/12/17	Tue 12/12/17
99		CLT 2-way panels	2.5days	Tue 12/12/17	Fri 15/12/17
100		**Mass Timber Frame c/w columns to Level 04, flat-plate slab to Level 05**	**8.5days**	**Fri 15/12/17**	**Wed 27/12/17**
101		Prefabricated GLT columns	6days	Fri 15/12/17	Mon 25/12/17
102		CLT 2-way panels	2.5days	Mon 25/12/17	Wed 27/12/17
103		**Mass Timber Frame c/w columns to Level 05, flat-plate slab to Level 06**	**8.5days**	**Wed 27/12/17**	**Tue 09/01/18**
104		Prefabricated GLT columns	6days	Wed 27/12/17	Thu 04/01/18



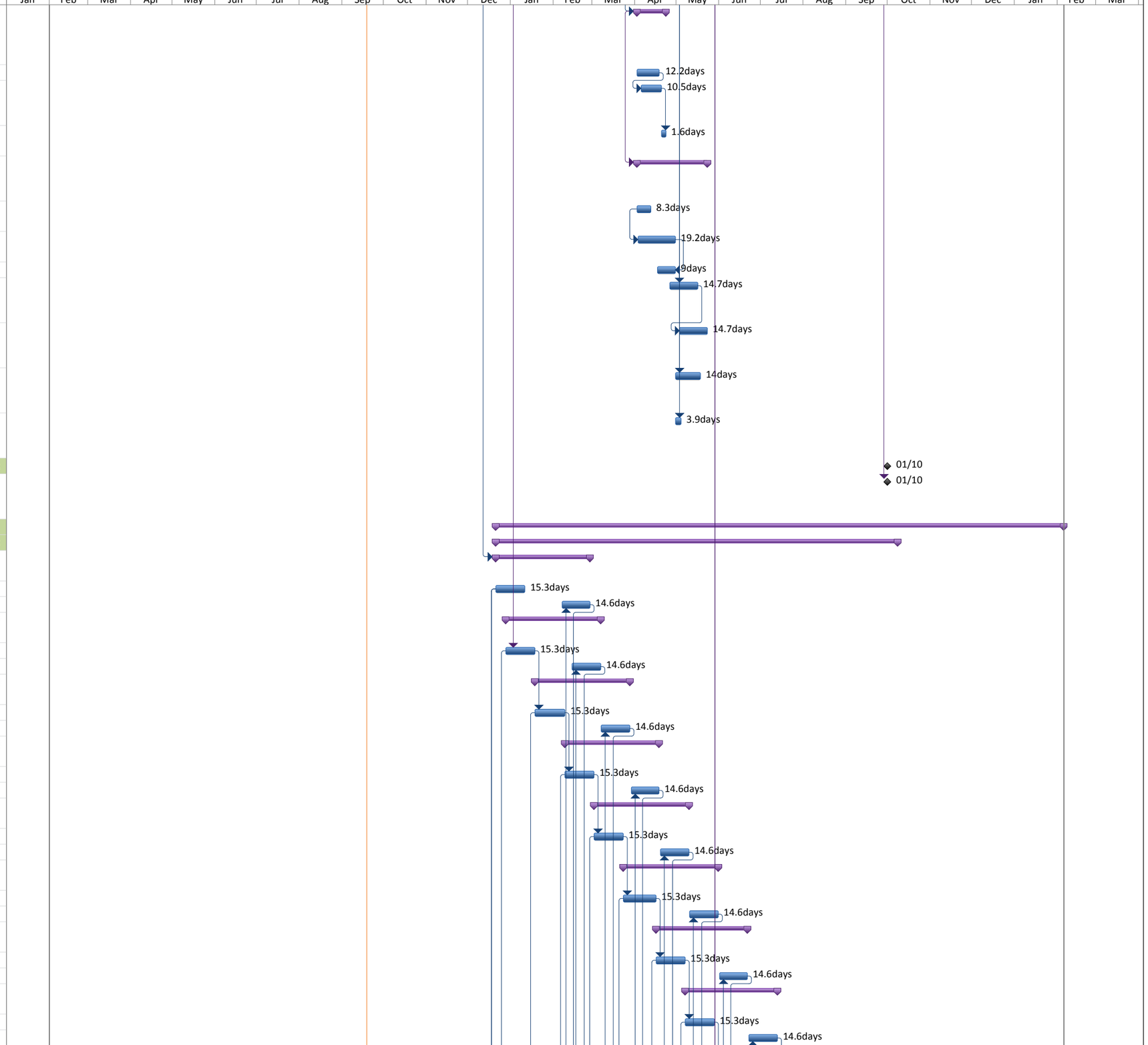
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
105		CLT 2-way panels	2.5days	Thu 04/01/18	Tue 09/01/18
106		**Mass Timber Frame c/w columns to Level 06, flat-plate slab to Level 07**	**8.5days**	**Tue 09/01/18**	**Fri 19/01/18**
107		Prefabricated GLT columns	6days	Tue 09/01/18	Wed 17/01/18
108		CLT 2-way panels	2.5days	Wed 17/01/18	Fri 19/01/18
109		**Mass Timber Frame c/w columns to Level 07, flat-plate slab to Level 08**	**8.5days**	**Fri 19/01/18**	**Thu 01/02/18**
110		Prefabricated GLT columns	6days	Fri 19/01/18	Mon 29/01/18
111		CLT 2-way panels	2.5days	Mon 29/01/18	Thu 01/02/18
112		**Mass Timber Frame c/w columns to Level 08, flat-plate slab to Level 09**	**8.5days**	**Thu 01/02/18**	**Tue 13/02/18**
113		Prefabricated GLT columns	6days	Thu 01/02/18	Fri 09/02/18
114		CLT 2-way panels	2.5days	Fri 09/02/18	Tue 13/02/18
115		**Mass Timber Frame c/w columns to Level 09, flat-plate slab to Level 10**	**8.5days**	**Tue 13/02/18**	**Mon 26/02/18**
116		Prefabricated GLT columns	6days	Tue 13/02/18	Wed 21/02/18
117		CLT 2-way panels	2.5days	Wed 21/02/18	Mon 26/02/18
118		**Mass Timber Frame c/w columns to Level 10, flat-plate slab to Level 11**	**8.5days**	**Mon 26/02/18**	**Thu 08/03/18**
119		Prefabricated GLT columns	6days	Mon 26/02/18	Tue 06/03/18
120		CLT 2-way panels	2.5days	Tue 06/03/18	Thu 08/03/18
121		**Mass Timber Frame c/w columns to Level 11, flat-plate slab to Level 12**	**8.5days**	**Thu 08/03/18**	**Wed 21/03/18**
122		Prefabricated GLT columns	6days	Thu 08/03/18	Fri 16/03/18
123		CLT 2-way panels	2.5days	Fri 16/03/18	Wed 21/03/18
124		**Mass Timber Frame c/w columns to Level 12, flat-plate slab to Roof**	**8.5days**	**Wed 21/03/18**	**Mon 02/04/18**
125		Prefabricated GLT columns	6days	Wed 21/03/18	Thu 29/03/18
126		CLT 2-way panels	2.5days	Thu 29/03/18	Mon 02/04/18
127		**A3 Exterior Enclosure**	**206days**	**Fri 15/12/17**	**Mon 01/10/18**
128		**A32 Walls Above Grade**	**82.5days**	**Fri 15/12/17**	**Tue 10/04/18**

ID	Task Mode	Task Name	Rounded Duration	Start	Finish
129		Level 01. Double glazed curtain wall assembly	60.9days	Fri 15/12/17	Fri 09/03/18
130		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**9.5days**	**Fri 15/12/17**	**Thu 28/12/17**
131		EW-1, EW-2 to Level 02	5days	Fri 15/12/17	Fri 22/12/17
132		Vapour barrier	4.1days	Fri 15/12/17	Fri 22/12/17
133		16 mm GWB wall board	7.6days	Mon 18/12/17	Thu 28/12/17
134		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**9.5days**	**Fri 22/12/17**	**Thu 04/01/18**
135		EW-1, EW-2 to Level 03	5days	Fri 22/12/17	Fri 29/12/17
136		Vapour barrier	4.1days	Fri 22/12/17	Fri 29/12/17
137		16 mm GWB wall board	7.6days	Mon 25/12/17	Thu 04/01/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**9.5days**	**Fri 29/12/17**	**Thu 11/01/18**
139		EW-1, EW-2 to Level 04	5days	Fri 29/12/17	Fri 05/01/18
140		Vapour barrier	4.1days	Fri 29/12/17	Fri 05/01/18
141		16 mm GWB wall board	7.6days	Mon 01/01/18	Thu 11/01/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**9.5days**	**Fri 19/01/18**	**Fri 02/02/18**
143		EW-1, EW-2 to Level 05	5days	Fri 19/01/18	Fri 26/01/18
144		Vapour barrier	4.1days	Mon 22/01/18	Fri 26/01/18
145		16 mm GWB wall board	7.6days	Tue 23/01/18	Fri 02/02/18
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**9.5days**	**Fri 26/01/18**	**Fri 09/02/18**
147		EW-1, EW-2 to Level 06	5days	Fri 26/01/18	Fri 02/02/18
148		Vapour barrier	4.1days	Mon 29/01/18	Fri 02/02/18
149		16 mm GWB wall board	7.6days	Tue 30/01/18	Fri 09/02/18
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**9.5days**	**Fri 02/02/18**	**Fri 16/02/18**
151		EW-1, EW-2 to Level 07	5days	Fri 02/02/18	Fri 09/02/18
152		Vapour barrier	4.1days	Mon 05/02/18	Fri 09/02/18
153		16 mm GWB wall board	7.6days	Tue 06/02/18	Fri 16/02/18

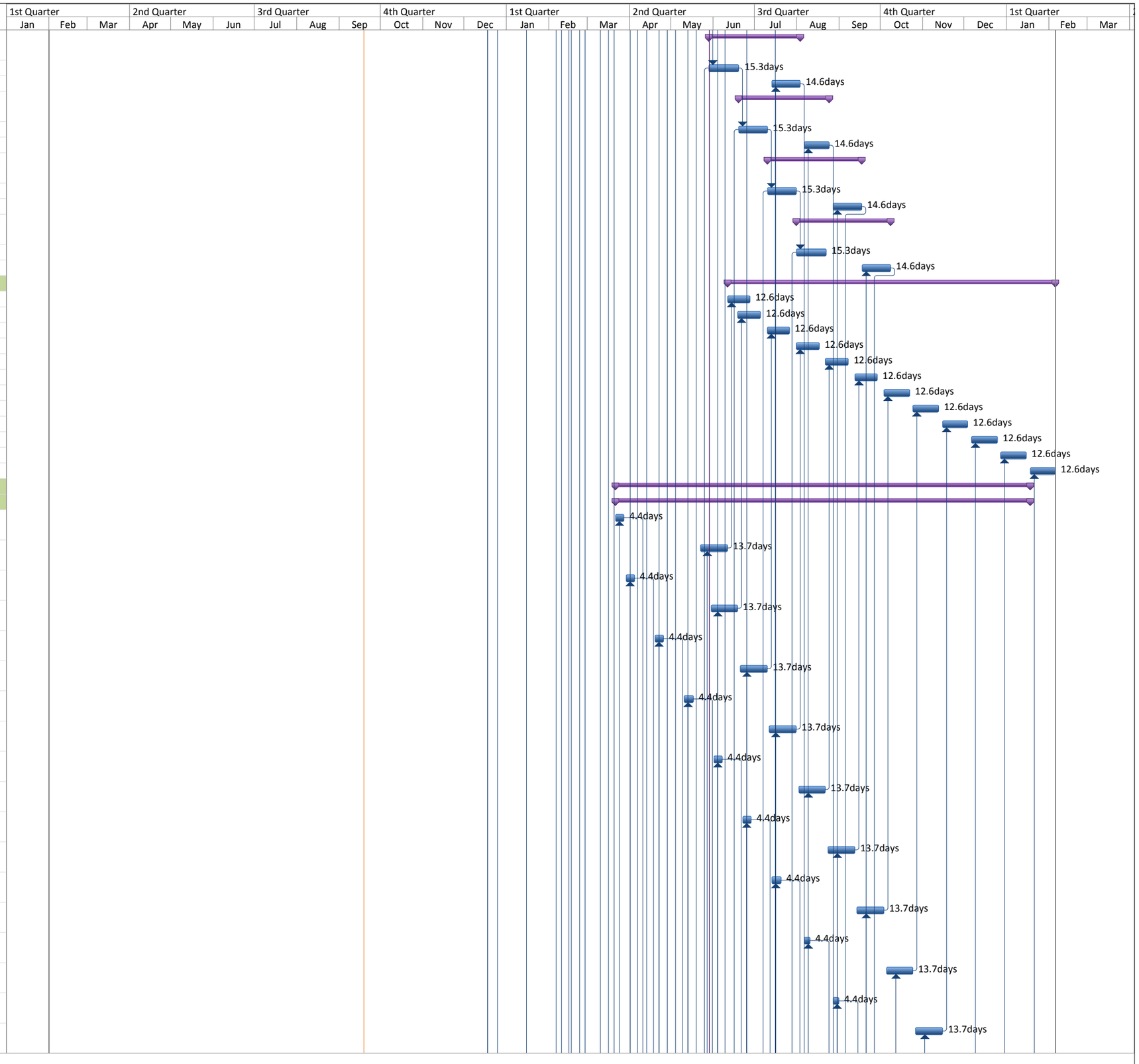
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
154		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**9.5days**	**Mon 26/02/18**	**Fri 09/03/18**
155		EW-1, EW-2 to Level 08	5days	Mon 26/02/18	Mon 05/03/18
156		Vapour barrier	4.1days	Mon 26/02/18	Mon 05/03/18
157		16 mm GWB wall board	7.6days	Tue 27/02/18	Fri 09/03/18
158		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**9.5days**	**Mon 05/03/18**	**Fri 16/03/18**
159		EW-1, EW-2 to Level 09	5days	Mon 05/03/18	Mon 12/03/18
160		Vapour barrier	4.1days	Mon 05/03/18	Mon 12/03/18
161		16 mm GWB wall board	7.6days	Tue 06/03/18	Fri 16/03/18
162		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**9.5days**	**Mon 12/03/18**	**Fri 23/03/18**
163		EW-1, EW-2 to Level 10	5days	Mon 12/03/18	Mon 19/03/18
164		Vapour barrier	4.1days	Mon 12/03/18	Mon 19/03/18
165		16 mm GWB wall board	7.6days	Tue 13/03/18	Fri 23/03/18
166		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**9.5days**	**Wed 21/03/18**	**Tue 03/04/18**
167		EW-1, EW-2 to Level 11	5days	Wed 21/03/18	Wed 28/03/18
168		Vapour barrier	4.1days	Wed 21/03/18	Wed 28/03/18
169		16 mm GWB wall board	7.6days	Thu 22/03/18	Tue 03/04/18
170		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**9.5days**	**Wed 28/03/18**	**Tue 10/04/18**
171		EW-1, EW-2 to Level 12	5days	Wed 28/03/18	Wed 04/04/18
172		Vapour barrier	4.1days	Wed 28/03/18	Wed 04/04/18
173		16 mm GWB wall board	7.6days	Thu 29/03/18	Tue 10/04/18
174		**A33 Windows and entrancies**	**15days**	**Fri 09/03/18**	**Fri 30/03/18**
175		Glazed vestibule door c/w frame, standard hardware	5.6days	Fri 09/03/18	Mon 19/03/18
176		Exterior metal doors c/w frame and hardware	9.4days	Mon 19/03/18	Fri 30/03/18
177		**A34 Roof Coverings**	**37.3days**	**Mon 02/04/18**	**Wed 23/05/18**
178		Hardscape. Precast concrete pavers	20.1days	Mon 02/04/18	Mon 30/04/18



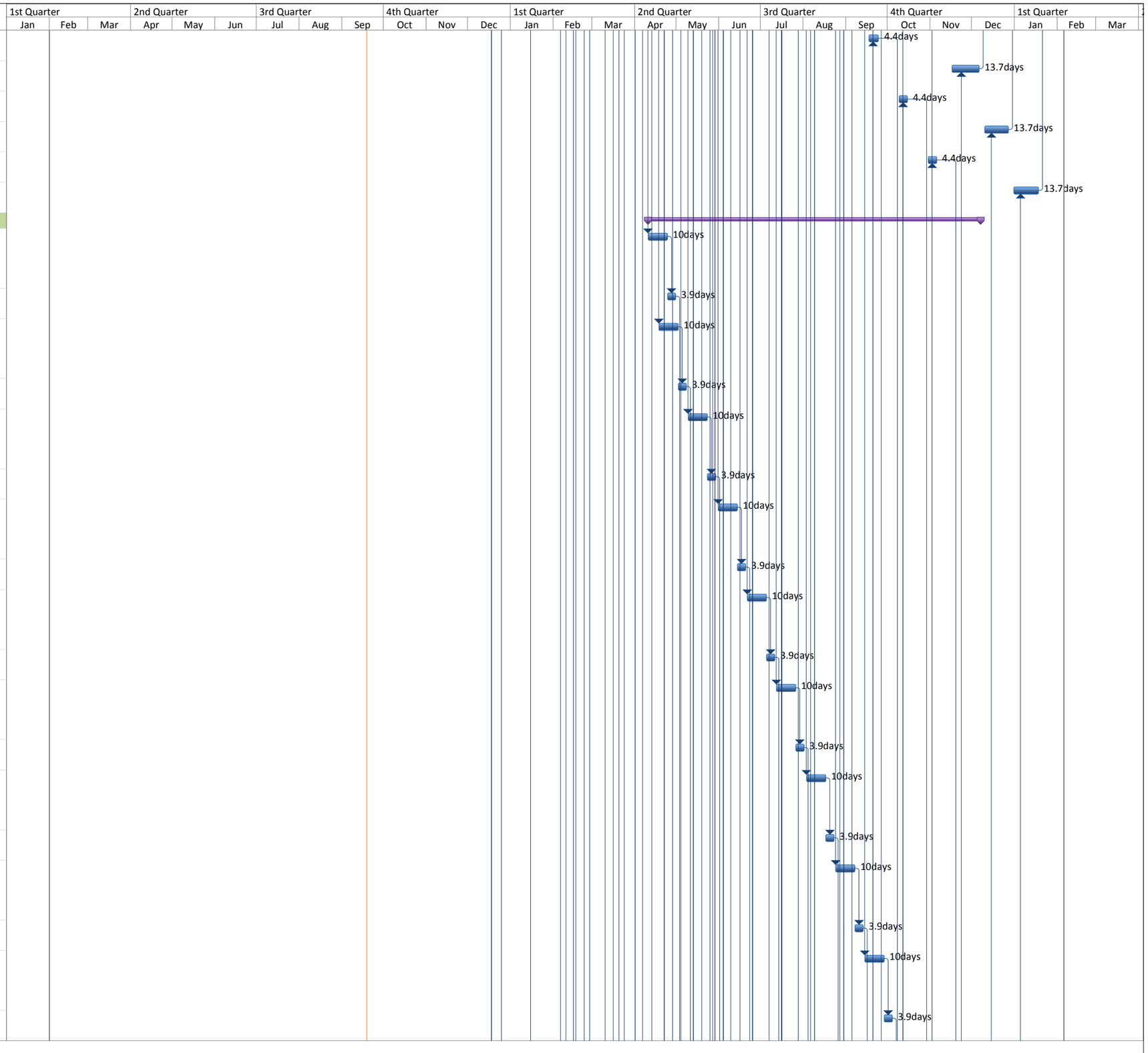
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
179		**Greenscape. Landscaping, indigenous plants + grasses**	**15.2days**	**Mon 02/04/18**	**Mon 23/04/18**
180		Planting beds	12.2days	Mon 02/04/18	Wed 18/04/18
181		Top soil placement and grading by hand	10.5days	Thu 05/04/18	Fri 20/04/18
182		Mechanical seeding	1.6days	Fri 20/04/18	Mon 23/04/18
183		**Modified bituminous membrane**	**37.3days**	**Mon 02/04/18**	**Wed 23/05/18**
184		6 mm vapour barier	8.3days	Mon 02/04/18	Thu 12/04/18
185		150 mm rigid insulation	19.2days	Tue 03/04/18	Mon 30/04/18
186		12 mm plywood	9days	Tue 17/04/18	Mon 30/04/18
187		Bituminous membrane base layer	14.7days	Thu 26/04/18	Wed 16/05/18
188		Bituminous membrane finish layer	14.7days	Thu 03/05/18	Wed 23/05/18
189		Bikespace. Engineered wood fibre	14days	Mon 30/04/18	Fri 18/05/18
190		Gymspace. Engineered wood fibre	3.9days	Mon 30/04/18	Fri 04/05/18
191		**A35 Projections**	**0days**	**Mon 01/10/18**	**Mon 01/10/18**
192		All projections included in relative sections	0days	Mon 01/10/18	Mon 01/10/18
193		**B1 Partitions and Doors**	**293.7days**	**Thu 21/12/17**	**Tue 05/02/19**
194		**B11 Partitions**	**207.4days**	**Thu 21/12/17**	**Mon 08/10/18**
195		**GWB partitions to Level 01**	**48.6days**	**Thu 21/12/17**	**Tue 27/02/18**
196		Metal studs	15.3days	Thu 21/12/17	Thu 11/01/18
197		GWB	14.6days	Wed 07/02/18	Tue 27/02/18
198		**GWB partitions to Level 02**	**48.6days**	**Thu 28/12/17**	**Wed 07/03/18**
199		Metal studs	15.3days	Thu 28/12/17	Thu 18/01/18
200		GWB	14.6days	Wed 14/02/18	Wed 07/03/18
201		**GWB partitions to Level 03**	**48.6days**	**Thu 18/01/18**	**Wed 28/03/18**
202		Metal studs	15.3days	Thu 18/01/18	Fri 09/02/18
203		GWB	14.6days	Wed 07/03/18	Wed 28/03/18
204		**GWB partitions to Level 04**	**48.6days**	**Fri 09/02/18**	**Wed 18/04/18**
205		Metal studs	15.3days	Fri 09/02/18	Fri 02/03/18
206		GWB	14.6days	Thu 29/03/18	Wed 18/04/18
207		**GWB partitions to Level 05**	**48.6days**	**Fri 02/03/18**	**Thu 10/05/18**
208		Metal studs	15.3days	Fri 02/03/18	Fri 23/03/18
209		GWB	14.6days	Thu 19/04/18	Thu 10/05/18
210		**GWB partitions to Level 06**	**48.6days**	**Fri 23/03/18**	**Thu 31/05/18**
211		Metal studs	15.3days	Fri 23/03/18	Mon 16/04/18
212		GWB	14.6days	Thu 10/05/18	Thu 31/05/18
213		**GWB partitions to Level 07**	**48.6days**	**Mon 16/04/18**	**Thu 21/06/18**
214		Metal studs	15.3days	Mon 16/04/18	Mon 07/05/18
215		GWB	14.6days	Fri 01/06/18	Thu 21/06/18
216		**GWB partitions to Level 08**	**48.6days**	**Mon 07/05/18**	**Fri 13/07/18**
217		Metal studs	15.3days	Mon 07/05/18	Mon 28/05/18
218		GWB	14.6days	Fri 22/06/18	Fri 13/07/18



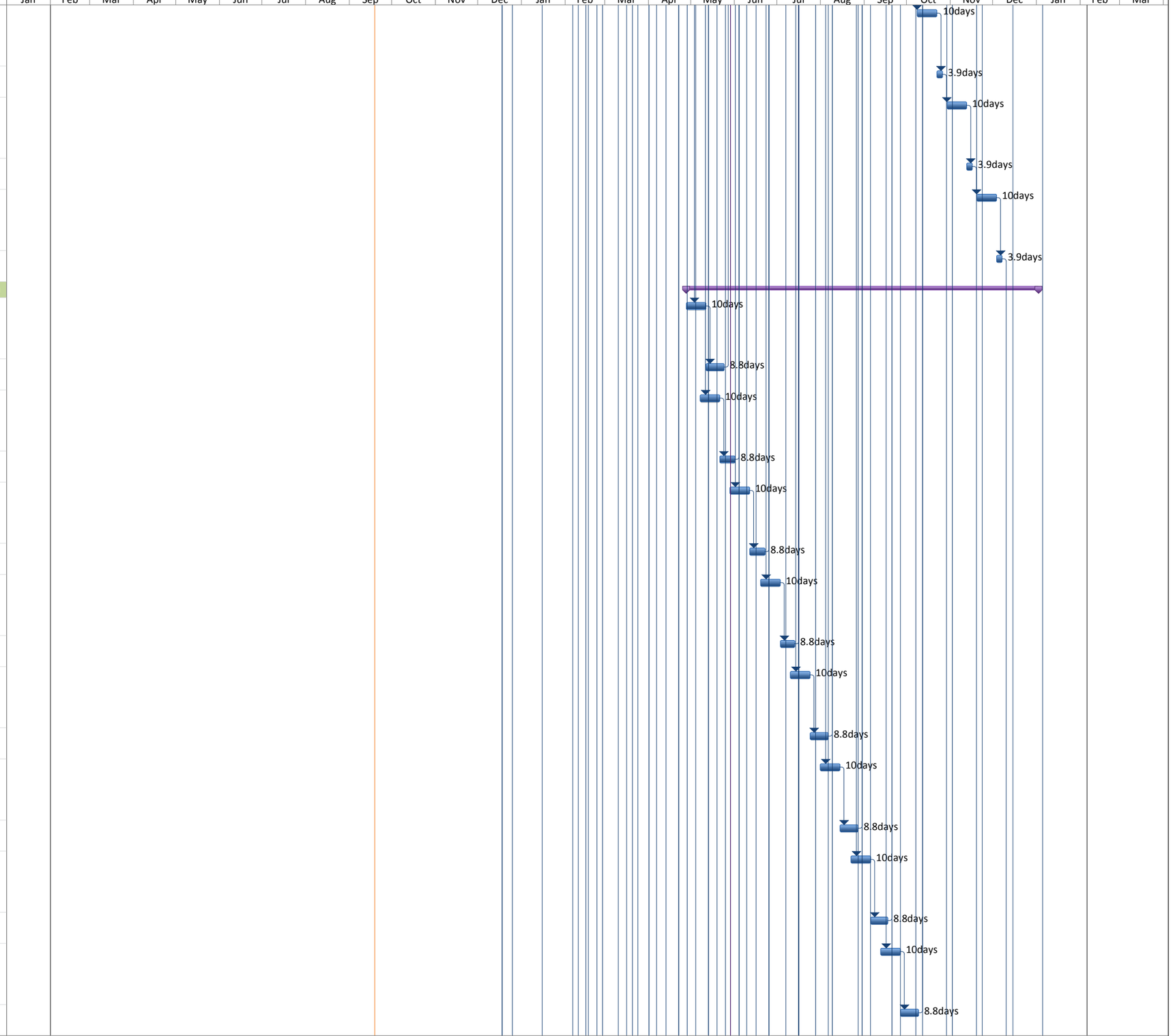
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
219		**GWB partitions to Level 09**	**48.6days**	**Mon 28/05/18**	**Fri 03/08/18**
220		Metal studs	15.3days	Mon 28/05/18	Tue 19/06/18
221		GWB	14.6days	Fri 13/07/18	Fri 03/08/18
222		**GWB partitions to Level 10**	**48.6days**	**Tue 19/06/18**	**Fri 24/08/18**
223		Metal studs	15.3days	Tue 19/06/18	Tue 10/07/18
224		GWB	14.6days	Mon 06/08/18	Fri 24/08/18
225		**GWB partitions to Level 11**	**48.6days**	**Tue 10/07/18**	**Mon 17/09/18**
226		Metal studs	15.3days	Tue 10/07/18	Tue 31/07/18
227		GWB	14.6days	Mon 27/08/18	Mon 17/09/18
228		**GWB partitions to Level 12**	**48.6days**	**Tue 31/07/18**	**Mon 08/10/18**
229		Metal studs	15.3days	Tue 31/07/18	Wed 22/08/18
230		GWB	14.6days	Mon 17/09/18	Mon 08/10/18
231		**B12 Doors**	**171.4days**	**Mon 11/06/18**	**Tue 05/02/19**
232		Doors to Level 01	12.6days	Mon 11/06/18	Wed 27/06/18
233		Doors to Level 02	12.6days	Mon 18/06/18	Thu 05/07/18
234		Doors to Level 03	12.6days	Tue 10/07/18	Thu 26/07/18
235		Doors to Level 04	12.6days	Tue 31/07/18	Fri 17/08/18
236		Doors to Level 05	12.6days	Tue 21/08/18	Fri 07/09/18
237		Doors to Level 06	12.6days	Wed 12/09/18	Fri 28/09/18
238		Doors to Level 07	12.6days	Wed 03/10/18	Mon 22/10/18
239		Doors to Level 08	12.6days	Wed 24/10/18	Mon 12/11/18
240		Doors to Level 09	12.6days	Thu 15/11/18	Mon 03/12/18
241		Doors to Level 10	12.6days	Thu 06/12/18	Tue 25/12/18
242		Doors to Level 11	12.6days	Thu 27/12/18	Tue 15/01/19
243		Doors to Level 12	12.6days	Fri 18/01/19	Tue 05/02/19
244		**B2 Finishes**	**216.6days**	**Wed 21/03/18**	**Fri 18/01/19**
245		**B21 Floor Finishes**	**216.6days**	**Wed 21/03/18**	**Fri 18/01/19**
246		50mm concrete topping to Level 01	4.4days	Wed 21/03/18	Tue 27/03/18
247		Floor finishes to Level 01	13.7days	Tue 22/05/18	Mon 11/06/18
248		50mm concrete topping to Level 02	4.4days	Thu 29/03/18	Wed 04/04/18
249		Floor finishes to Level 02	13.7days	Wed 30/05/18	Mon 18/06/18
250		50mm concrete topping to Level 03	4.4days	Thu 19/04/18	Wed 25/04/18
251		Floor finishes to Level 03	13.7days	Wed 20/06/18	Tue 10/07/18
252		50mm concrete topping to Level 04	4.4days	Thu 10/05/18	Thu 17/05/18
253		Floor finishes to Level 04	13.7days	Wed 11/07/18	Tue 31/07/18
254		50mm concrete topping to Level 05	4.4days	Fri 01/06/18	Thu 07/06/18
255		Floor finishes to Level 05	13.7days	Thu 02/08/18	Tue 21/08/18
256		50mm concrete topping to Level 06	4.4days	Fri 22/06/18	Thu 28/06/18
257		Floor finishes to Level 06	13.7days	Thu 23/08/18	Wed 12/09/18
258		50mm concrete topping to Level 07	4.4days	Fri 13/07/18	Fri 20/07/18
259		Floor finishes to Level 07	13.7days	Thu 13/09/18	Wed 03/10/18
260		50mm concrete topping to Level 08	4.4days	Mon 06/08/18	Fri 10/08/18
261		Floor finishes to Level 08	13.7days	Fri 05/10/18	Wed 24/10/18
262		50mm concrete topping to Level 09	4.4days	Mon 27/08/18	Fri 31/08/18
263		Floor finishes to Level 09	13.7days	Fri 26/10/18	Thu 15/11/18



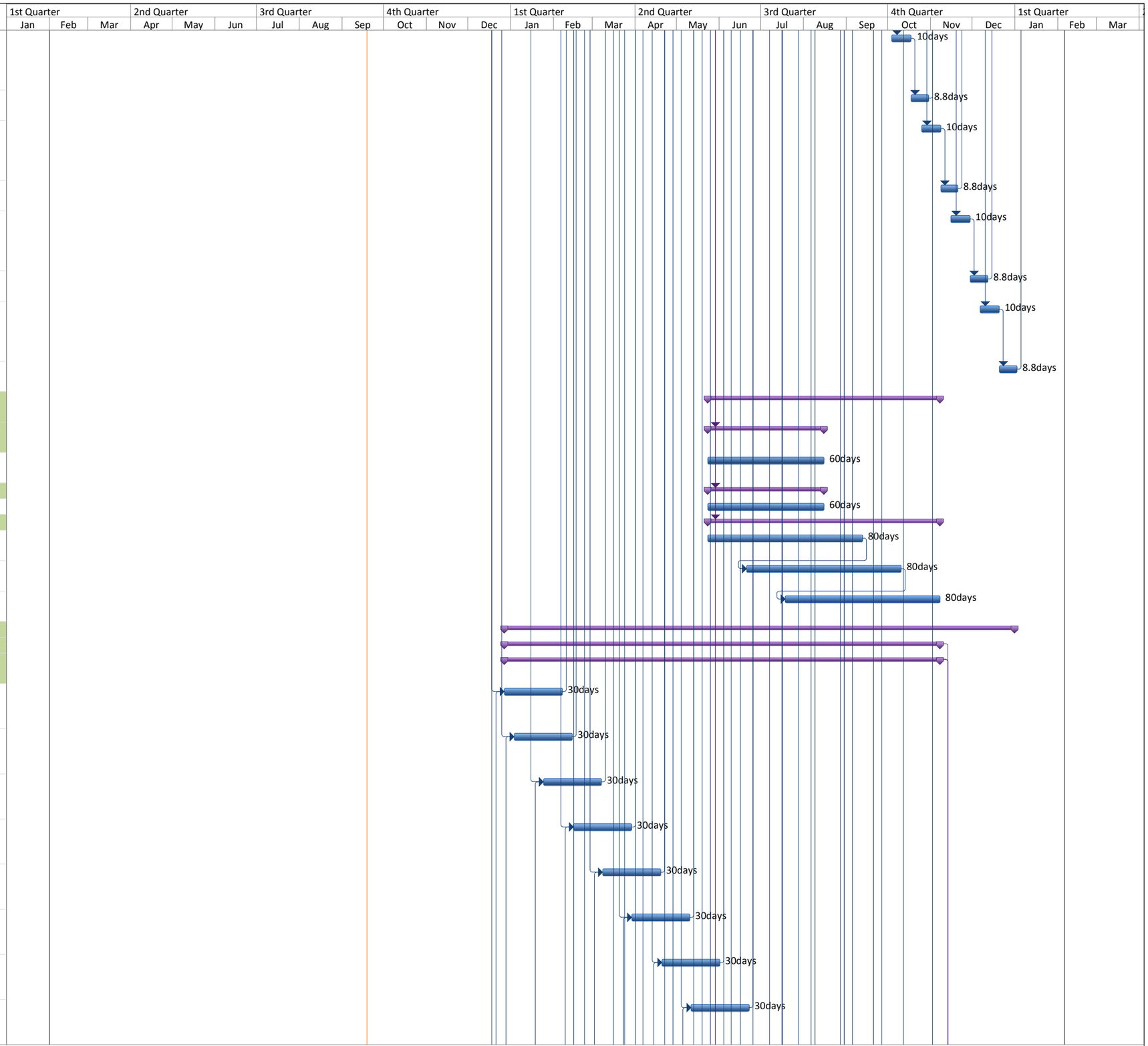
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
264		50mm concrete topping to Level 10	4.4days	Mon 17/09/18	Mon 24/09/18
265		Floor finishes to Level 10	13.7days	Fri 16/11/18	Thu 06/12/18
266		50mm concrete topping to Level 11	4.4days	Tue 09/10/18	Mon 15/10/18
267		Floor finishes to Level 11	13.7days	Mon 10/12/18	Thu 27/12/18
268		50mm concrete topping to Level 12	4.4days	Tue 30/10/18	Mon 05/11/18
269		Floor finishes to Level 12	13.7days	Mon 31/12/18	Fri 18/01/19
270		**B22 Ceiling Finishes**	**172.8days**	**Tue 10/04/18**	**Fri 07/12/18**
271		GWB encapsulation of mass timber to Level 01	10days	Tue 10/04/18	Tue 24/04/18
272		Ceiling finishes to Level 01	3.9days	Tue 24/04/18	Mon 30/04/18
273		GWB encapsulation of mass timber to Level 02	10days	Wed 18/04/18	Wed 02/05/18
274		Ceiling finishes to Level 02	3.9days	Wed 02/05/18	Tue 08/05/18
275		GWB encapsulation of mass timber to Level 03	10days	Wed 09/05/18	Wed 23/05/18
276		Ceiling finishes to Level 03	3.9days	Wed 23/05/18	Tue 29/05/18
277		GWB encapsulation of mass timber to Level 04	10days	Thu 31/05/18	Thu 14/06/18
278		Ceiling finishes to Level 04	3.9days	Thu 14/06/18	Wed 20/06/18
279		GWB encapsulation of mass timber to Level 05	10days	Thu 21/06/18	Thu 05/07/18
280		Ceiling finishes to Level 05	3.9days	Thu 05/07/18	Wed 11/07/18
281		GWB encapsulation of mass timber to Level 06	10days	Thu 12/07/18	Thu 26/07/18
282		Ceiling finishes to Level 06	3.9days	Thu 26/07/18	Wed 01/08/18
283		GWB encapsulation of mass timber to Level 07	10days	Fri 03/08/18	Fri 17/08/18
284		Ceiling finishes to Level 07	3.9days	Fri 17/08/18	Thu 23/08/18
285		GWB encapsulation of mass timber to Level 08	10days	Fri 24/08/18	Fri 07/09/18
286		Ceiling finishes to Level 08	3.9days	Fri 07/09/18	Thu 13/09/18
287		GWB encapsulation of mass timber to Level 09	10days	Fri 14/09/18	Fri 28/09/18
288		Ceiling finishes to Level 09	3.9days	Fri 28/09/18	Thu 04/10/18



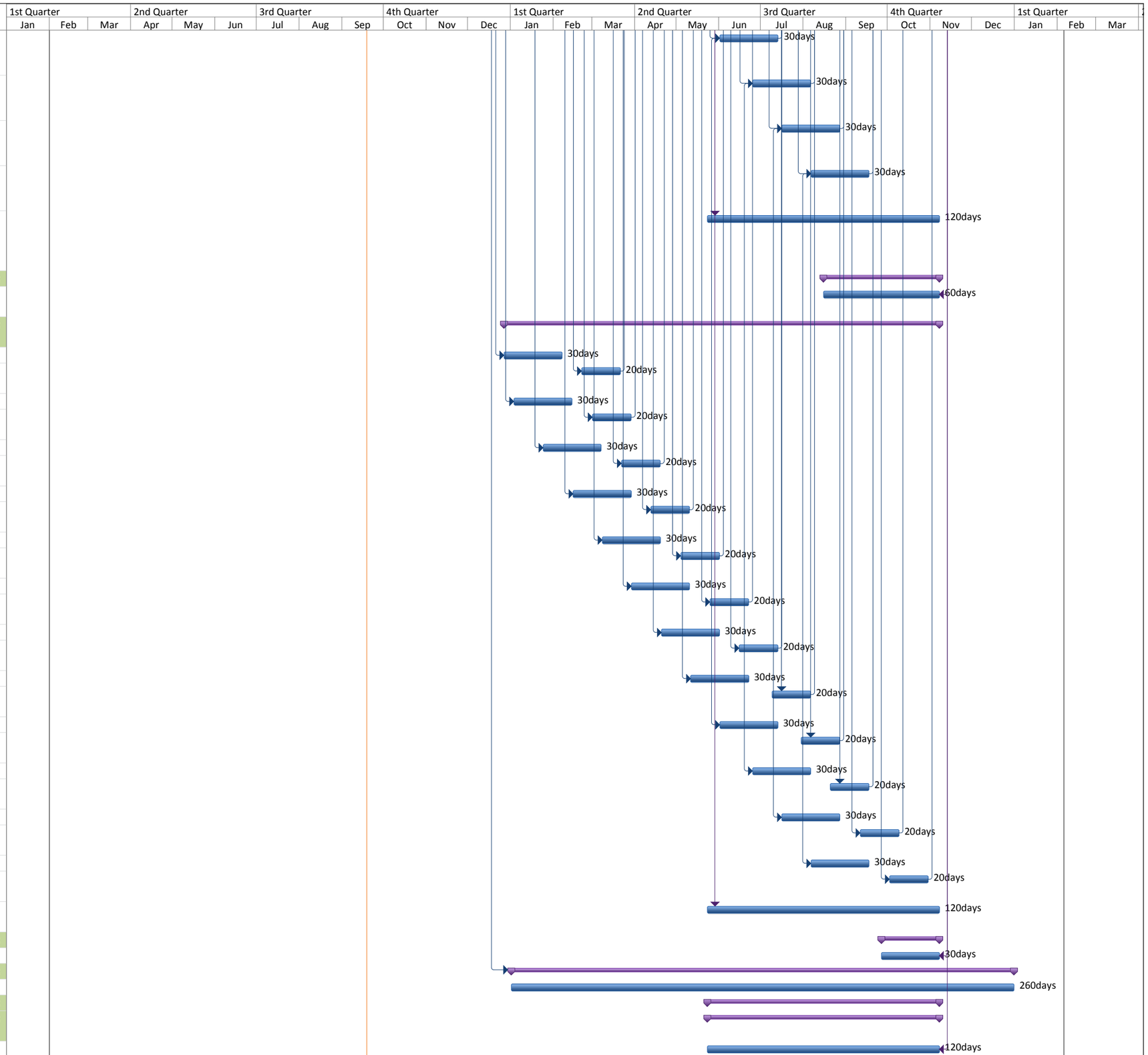
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
289		GWB encapsulation of mass timber to Level 10	10days	Mon 08/10/18	Mon 22/10/18
290		Ceiling finishes to Level 10	3.9days	Mon 22/10/18	Fri 26/10/18
291		GWB encapsulation of mass timber to Level 11	10days	Mon 29/10/18	Mon 12/11/18
292		Ceiling finishes to Level 11	3.9days	Mon 12/11/18	Fri 16/11/18
293		GWB encapsulation of mass timber to Level 12	10days	Mon 19/11/18	Mon 03/12/18
294		Ceiling finishes to Level 12	3.9days	Mon 03/12/18	Fri 07/12/18
295		**B23 Wall Finishes**	**177.6days**	**Fri 27/04/18**	**Wed 02/01/19**
296		GWB encapsulation of mass timber to Level 01	10days	Fri 27/04/18	Fri 11/05/18
297		Wall finishes to Level 01	8.8days	Fri 11/05/18	Thu 24/05/18
298		GWB encapsulation of mass timber to Level 02	10days	Mon 07/05/18	Mon 21/05/18
299		Wall finishes to Level 02	8.8days	Mon 21/05/18	Fri 01/06/18
300		GWB encapsulation of mass timber to Level 03	10days	Mon 28/05/18	Mon 11/06/18
301		Wall finishes to Level 03	8.8days	Mon 11/06/18	Fri 22/06/18
302		GWB encapsulation of mass timber to Level 04	10days	Tue 19/06/18	Tue 03/07/18
303		Wall finishes to Level 04	8.8days	Tue 03/07/18	Fri 13/07/18
304		GWB encapsulation of mass timber to Level 05	10days	Tue 10/07/18	Tue 24/07/18
305		Wall finishes to Level 05	8.8days	Tue 24/07/18	Mon 06/08/18
306		GWB encapsulation of mass timber to Level 06	10days	Tue 31/07/18	Tue 14/08/18
307		Wall finishes to Level 06	8.8days	Tue 14/08/18	Mon 27/08/18
308		GWB encapsulation of mass timber to Level 07	10days	Wed 22/08/18	Wed 05/09/18
309		Wall finishes to Level 07	8.8days	Wed 05/09/18	Mon 17/09/18
310		GWB encapsulation of mass timber to Level 08	10days	Wed 12/09/18	Wed 26/09/18
311		Wall finishes to Level 08	8.8days	Wed 26/09/18	Tue 09/10/18



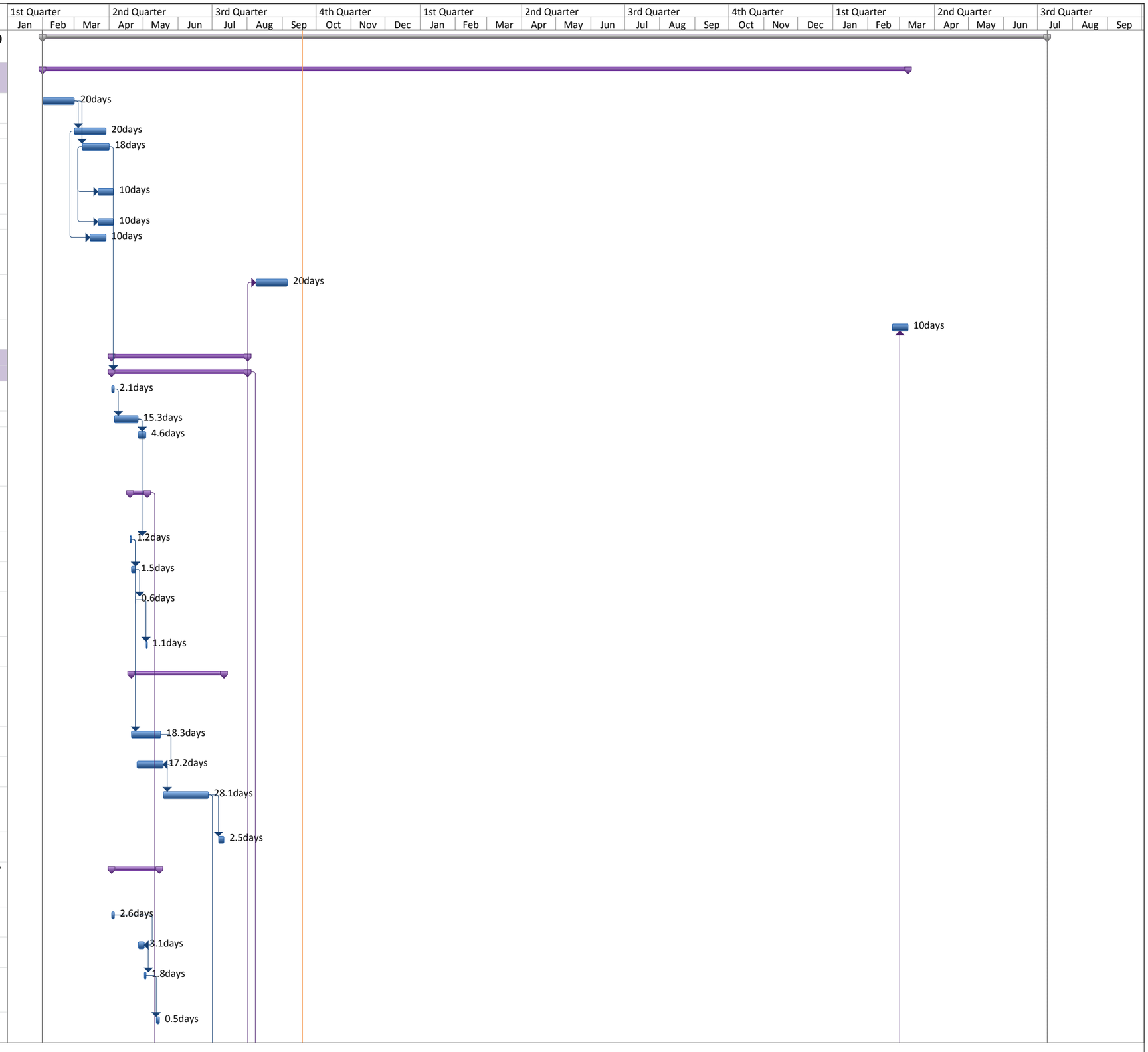
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
312		GWB encapsulation of mass timber to Level 09	10days	Wed 03/10/18	Wed 17/10/18
313		Wall finishes to Level 09	8.8days	Wed 17/10/18	Tue 30/10/18
314		GWB encapsulation of mass timber to Level 10	10days	Thu 25/10/18	Thu 08/11/18
315		Wall finishes to Level 10	8.8days	Thu 08/11/18	Tue 20/11/18
316		GWB encapsulation of mass timber to Level 11	10days	Thu 15/11/18	Thu 29/11/18
317		Wall finishes to Level 11	8.8days	Thu 29/11/18	Wed 12/12/18
318		GWB encapsulation of mass timber to Level 12	10days	Thu 06/12/18	Thu 20/12/18
319		Wall finishes to Level 12	8.8days	Thu 20/12/18	Wed 02/01/19
320		**B3 Fittings and Equipment**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
321		**B31 Fittings and Fixtures**	**60days**	**Wed 23/05/18**	**Wed 15/08/18**
322		Fittings and Fixtures	60days	Wed 23/05/18	Wed 15/08/18
323		**B32 Equipment**	**60days**	**Wed 23/05/18**	**Wed 15/08/18**
324		Equipment	60days	Wed 23/05/18	Wed 15/08/18
325		**B33 Elevators**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
326		Elevators to section 01	80days	Wed 23/05/18	Wed 12/09/18
327		Elevators to section 02	80days	Wed 20/06/18	Wed 10/10/18
328		Elevators to section 03	80days	Wed 18/07/18	Wed 07/11/18
329		**C. Services**	**263.8days**	**Wed 27/12/17**	**Mon 31/12/18**
330		**C1. Mechanical Services**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
331		**C11. Plumbing and Drainage**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
332		Mechanical elements to Level 01	30days	Wed 27/12/17	Wed 07/02/18
333		Mechanical elements to Level 02	30days	Wed 03/01/18	Wed 14/02/18
334		Mechanical elements to Level 03	30days	Wed 24/01/18	Wed 07/03/18
335		Mechanical elements to Level 04	30days	Thu 15/02/18	Thu 29/03/18
336		Mechanical elements to Level 05	30days	Thu 08/03/18	Thu 19/04/18
337		Mechanical elements to Level 06	30days	Thu 29/03/18	Thu 10/05/18
338		Mechanical elements to Level 07	30days	Fri 20/04/18	Fri 01/06/18
339		Mechanical elements to Level 08	30days	Fri 11/05/18	Fri 22/06/18



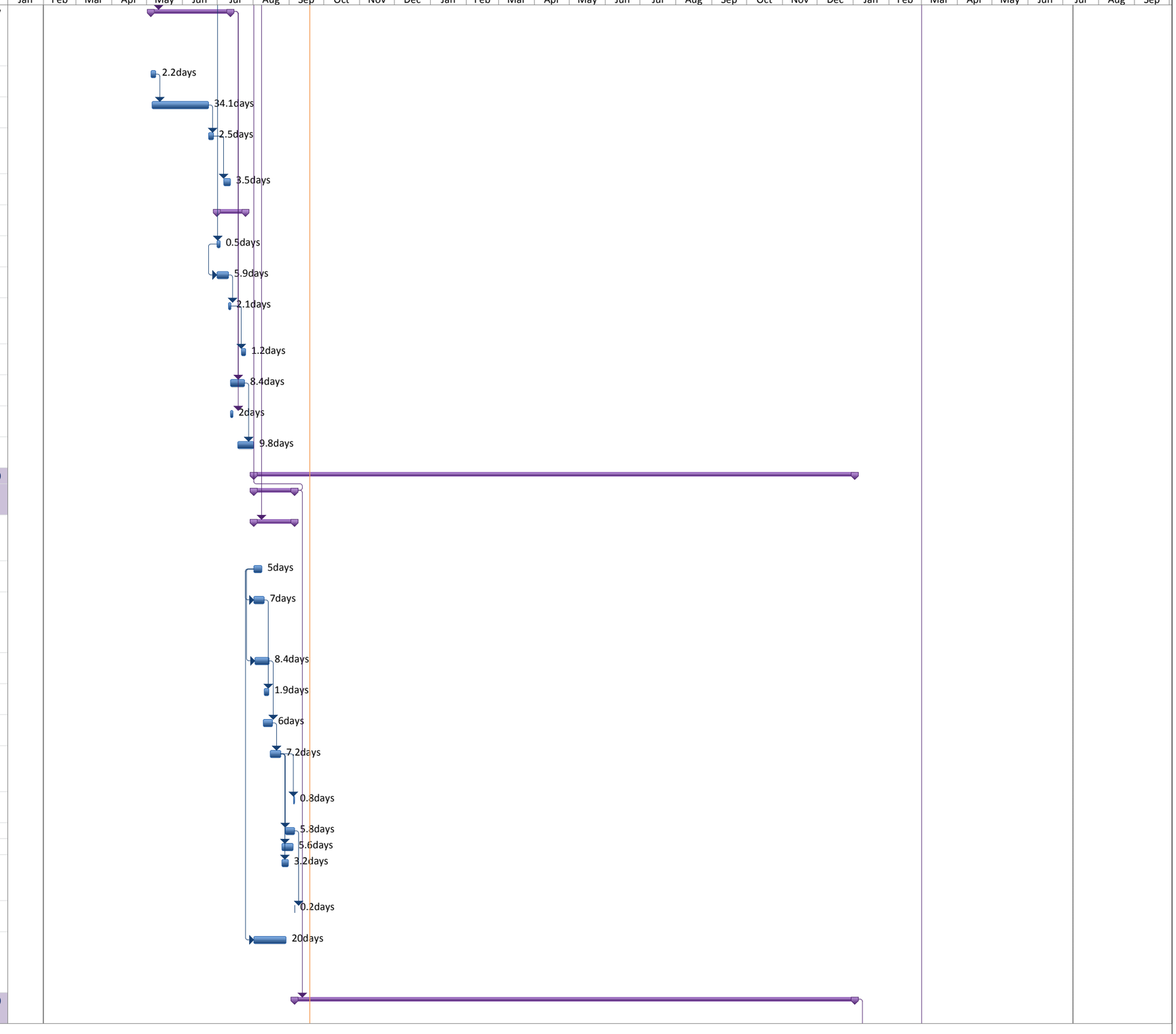
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
340		Mechanical elements to Level 09	30days	Fri 01/06/18	Fri 13/07/18
341		Mechanical elements to Level 10	30days	Mon 25/06/18	Mon 06/08/18
342		Mechanical elements to Level 11	30days	Mon 16/07/18	Mon 27/08/18
343		Mechanical elements to Level 12	30days	Mon 06/08/18	Mon 17/09/18
344		Mechanical elements other, include mechanical rooms	120days	Wed 23/05/18	Wed 07/11/18
345		**C12. Fire Protection**	**60days**	**Wed 15/08/18**	**Wed 07/11/18**
346		Fire protection services	60days	Wed 15/08/18	Wed 07/11/18
347		**C13. HVAC. Radiant floor heating.**	**225.8days**	**Wed 27/12/17**	**Wed 07/11/18**
348		HVAC to Level 01	30days	Wed 27/12/17	Wed 07/02/18
349		Radiant floor heating to Level 01	20days	Wed 21/02/18	Wed 21/03/18
350		HVAC to Level 02	30days	Wed 03/01/18	Wed 14/02/18
351		Radiant floor heating to Level 02	20days	Thu 01/03/18	Thu 29/03/18
352		HVAC to Level 03	30days	Wed 24/01/18	Wed 07/03/18
353		Radiant floor heating to Level 03	20days	Thu 22/03/18	Thu 19/04/18
354		HVAC to Level 04	30days	Thu 15/02/18	Thu 29/03/18
355		Radiant floor heating to Level 04	20days	Thu 12/04/18	Thu 10/05/18
356		HVAC to Level 05	30days	Thu 08/03/18	Thu 19/04/18
357		Radiant floor heating to Level 05	20days	Fri 04/05/18	Fri 01/06/18
358		HVAC to Level 06	30days	Thu 29/03/18	Thu 10/05/18
359		Radiant floor heating to Level 06	20days	Fri 25/05/18	Fri 22/06/18
360		HVAC to Level 07	30days	Fri 20/04/18	Fri 01/06/18
361		Radiant floor heating to Level 07	20days	Fri 15/06/18	Fri 13/07/18
362		HVAC to Level 08	30days	Fri 11/05/18	Fri 22/06/18
363		Radiant floor heating to Level 08	20days	Mon 09/07/18	Mon 06/08/18
364		HVAC to Level 09	30days	Fri 01/06/18	Fri 13/07/18
365		Radiant floor heating to Level 09	20days	Mon 30/07/18	Mon 27/08/18
366		HVAC to Level 10	30days	Mon 25/06/18	Mon 06/08/18
367		Radiant floor heating to Level 10	20days	Mon 20/08/18	Mon 17/09/18
368		HVAC to Level 11	30days	Mon 16/07/18	Mon 27/08/18
369		Radiant floor heating to Level 11	20days	Tue 11/09/18	Tue 09/10/18
370		HVAC to Level 12	30days	Mon 06/08/18	Mon 17/09/18
371		Radiant floor heating to Level 12	20days	Tue 02/10/18	Tue 30/10/18
372		Other HVAC to the rest of builduing	120days	Wed 23/05/18	Wed 07/11/18
373		**C14. Controls**	**30days**	**Wed 26/09/18**	**Wed 07/11/18**
374		DDC Controls	30days	Wed 26/09/18	Wed 07/11/18
375		**C2. Elecrtical Services**	**260days**	**Mon 01/01/18**	**Mon 31/12/18**
376		Electrical Services	260days	Mon 01/01/18	Mon 31/12/18
377		**D1. Site Work**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
378		**D11. Site Development**	**120days**	**Wed 23/05/18**	**Wed 07/11/18**
379		Site work	120days	Wed 23/05/18	Wed 07/11/18



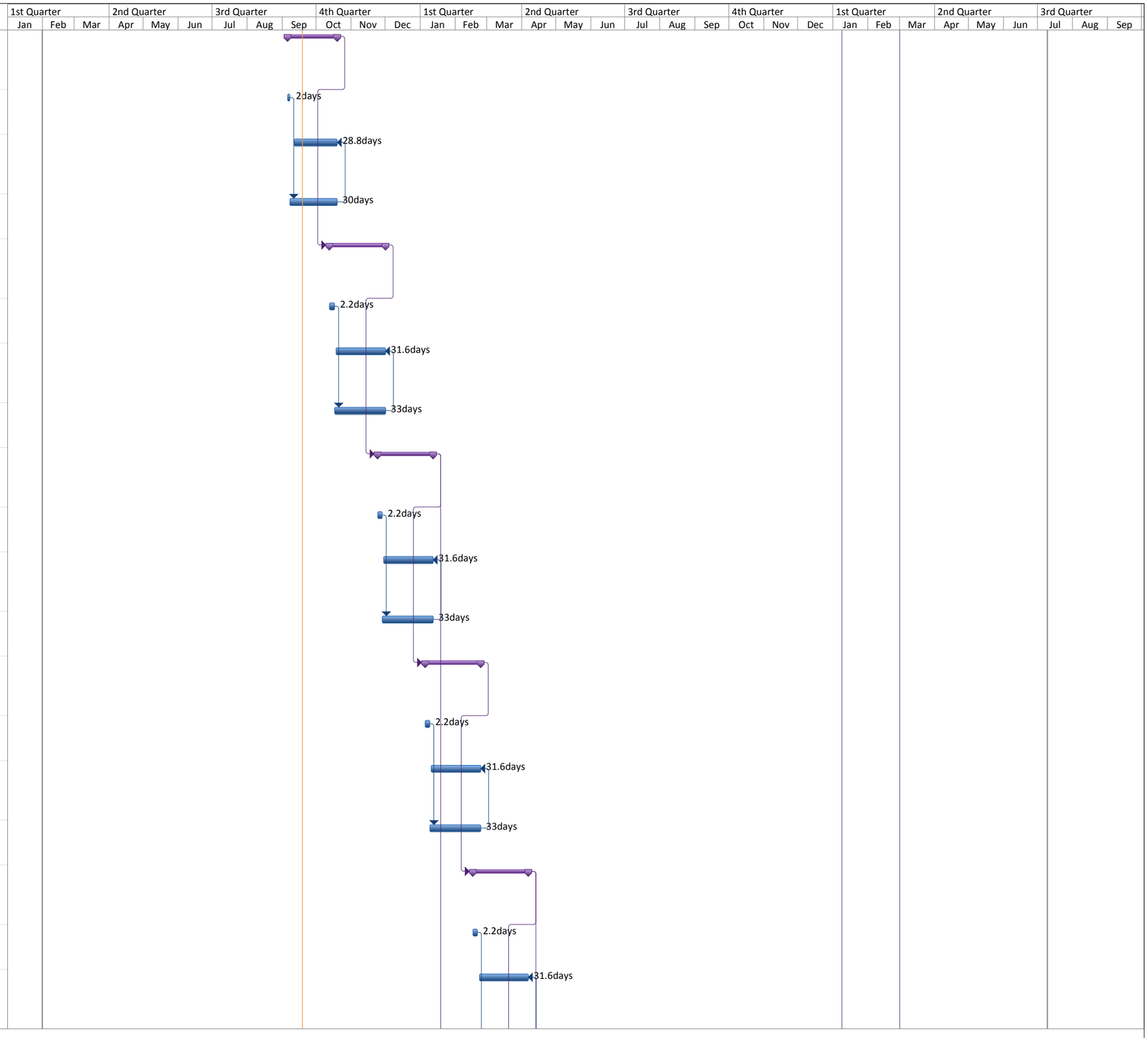
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Standard Concrete Building - Residential**	**634.5days**	**Wed 01/02/17**	**Tue 09/07/19**
1		**General Conditions and Management**	**547.4days**	**Wed 01/02/17**	**Fri 08/03/19**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 3 cranes	20days	Tue 08/08/17	Tue 05/09/17
9		Tower cranes dismantle - 3 cranes	10days	Fri 22/02/19	Fri 08/03/19
10		**A1 Substructure**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
11		**A11 Foundations**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
12		Clearing and grubbing	2.1days	Mon 03/04/17	Wed 05/04/17
13		Excavation	15.3days	Wed 05/04/17	Wed 26/04/17
14		Perimeter drain c/w filter socket and granular cover	4.6days	Wed 26/04/17	Wed 03/05/17
15		**Reinforced concrete strip footing**	**11.5days**	**Wed 19/04/17**	**Thu 04/05/17**
16		Concrete reinforcement	1.2days	Wed 19/04/17	Thu 20/04/17
17		Formwork to sides	1.5days	Thu 20/04/17	Mon 24/04/17
18		Concrete placing by pumps	0.6days	Mon 24/04/17	Mon 24/04/17
19		Stripping formwork	1.1days	Wed 03/05/17	Thu 04/05/17
20		**Reinforced concrete pad footing to columns**	**57.9days**	**Thu 20/04/17**	**Tue 11/07/17**
21		Concrete reinforcement	18.3days	Thu 20/04/17	Tue 16/05/17
22		Formwork to sides	17.2days	Tue 25/04/17	Thu 18/05/17
23		Concrete placing by pumps	28.1days	Thu 18/05/17	Tue 27/06/17
24		Stripping formwork	2.5days	Thu 06/07/17	Tue 11/07/17
25		**Raft slab below elevator & stair cores**	**30.2days**	**Mon 03/04/17**	**Mon 15/05/17**
26		Concrete reinforcement	2.6days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Wed 26/04/17	Mon 01/05/17
28		Concrete placing by pump	1.8days	Tue 02/05/17	Wed 03/05/17
29		Stripping formwork	0.5days	Fri 12/05/17	Mon 15/05/17



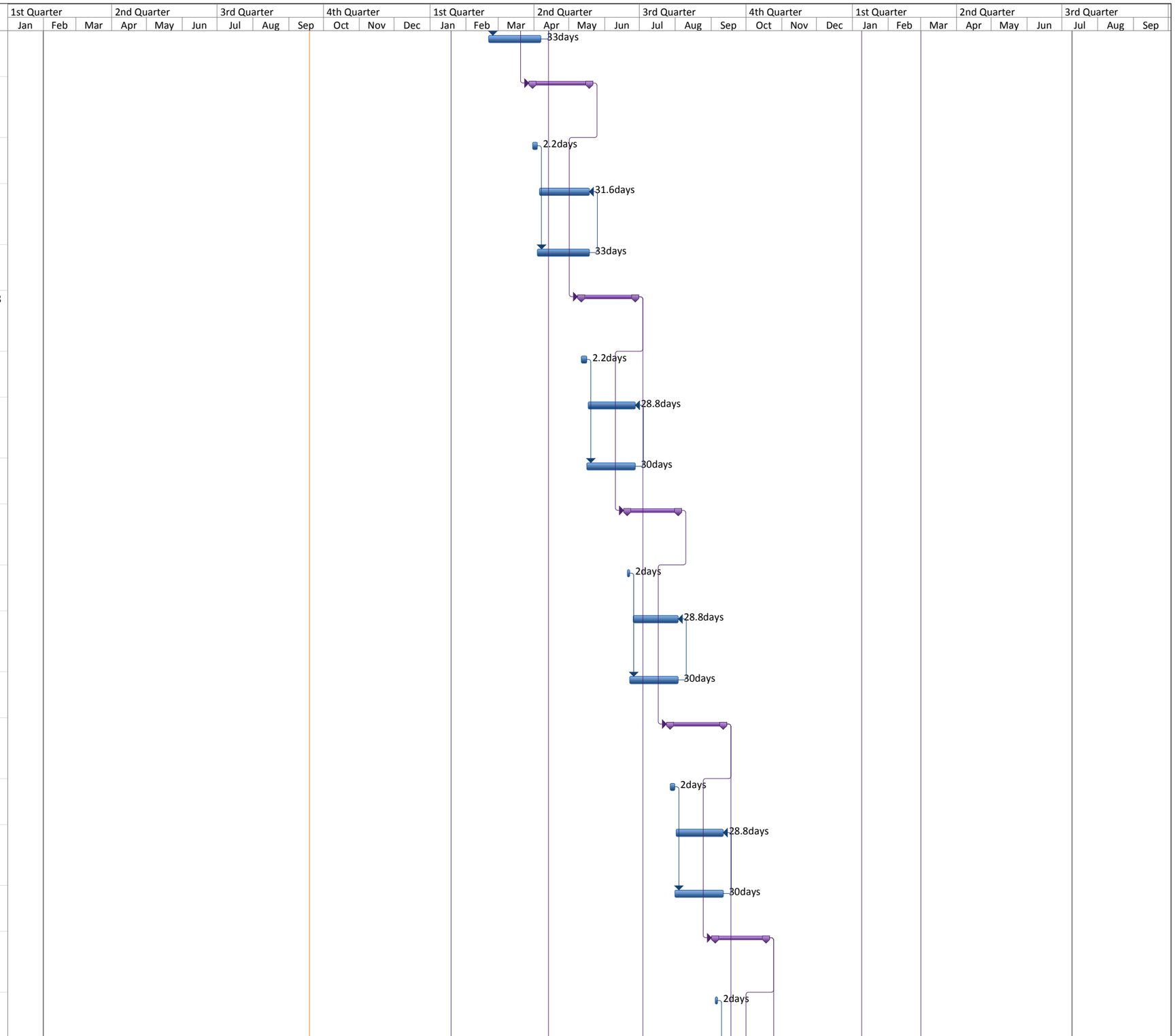
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
30		**Foundation wall. Reinforced concrete 250 mm thick**	**48.3days**	**Thu 04/05/17**	**Wed 12/07/17**
31		Concrete reinforcement	2.2days	Thu 04/05/17	Mon 08/05/17
32		Formwork to sides	34.1days	Fri 05/05/17	Fri 23/06/17
33		Concrete placing by pump	2.5days	Fri 23/06/17	Tue 27/06/17
34		Stripping formwork	3.5days	Thu 06/07/17	Wed 12/07/17
35		**Piers. Reinforced concrete**	**16.2days**	**Fri 30/06/17**	**Tue 25/07/17**
36		Concrete reinforcement	0.5days	Fri 30/06/17	Mon 03/07/17
37		Formwork to sides	5.9days	Fri 30/06/17	Mon 10/07/17
38		Concrete placing by pumps	2.1days	Mon 10/07/17	Wed 12/07/17
39		Stripping formwork	1.2days	Fri 21/07/17	Tue 25/07/17
40		Extraover for dampproofing	8.4days	Wed 12/07/17	Mon 24/07/17
41		Allowance for expansion joint	2days	Wed 12/07/17	Fri 14/07/17
42		Backfill excavated area c/w compaction	9.8days	Tue 18/07/17	Tue 01/08/17
43		**A2 Structure**	**370.8days**	**Tue 01/08/17**	**Wed 02/01/19**
44		**A21 Lowest Floor Construction**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
45		**250 mm reinforced concrete slab**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
46		6 mm vapour barier	5days	Tue 01/08/17	Tue 08/08/17
47		300 mm granular fill compacted slab	7days	Tue 01/08/17	Thu 10/08/17
48		75 mm rigid insulation	8.4days	Wed 02/08/17	Mon 14/08/17
49		Formwork to openings	1.9days	Thu 10/08/17	Mon 14/08/17
50		Concrete reinforcement	6days	Wed 09/08/17	Thu 17/08/17
51		Concrete placing by pump	7.2days	Tue 15/08/17	Thu 24/08/17
52		Stripping formwork	0.8days	Mon 04/09/17	Tue 05/09/17
53		Finishing	5.8days	Mon 28/08/17	Tue 05/09/17
54		Water curing	5.6days	Fri 25/08/17	Mon 04/09/17
55		Sheet membrane curing	3.2days	Fri 25/08/17	Thu 31/08/17
56		Sawcut control joints	0.2days	Tue 05/09/17	Tue 05/09/17
57		Civil works. General civil infrastructure allowance	20days	Tue 01/08/17	Tue 29/08/17
58		**A22 Upper Floor Construction**	**345.2days**	**Tue 05/09/17**	**Wed 02/01/19**



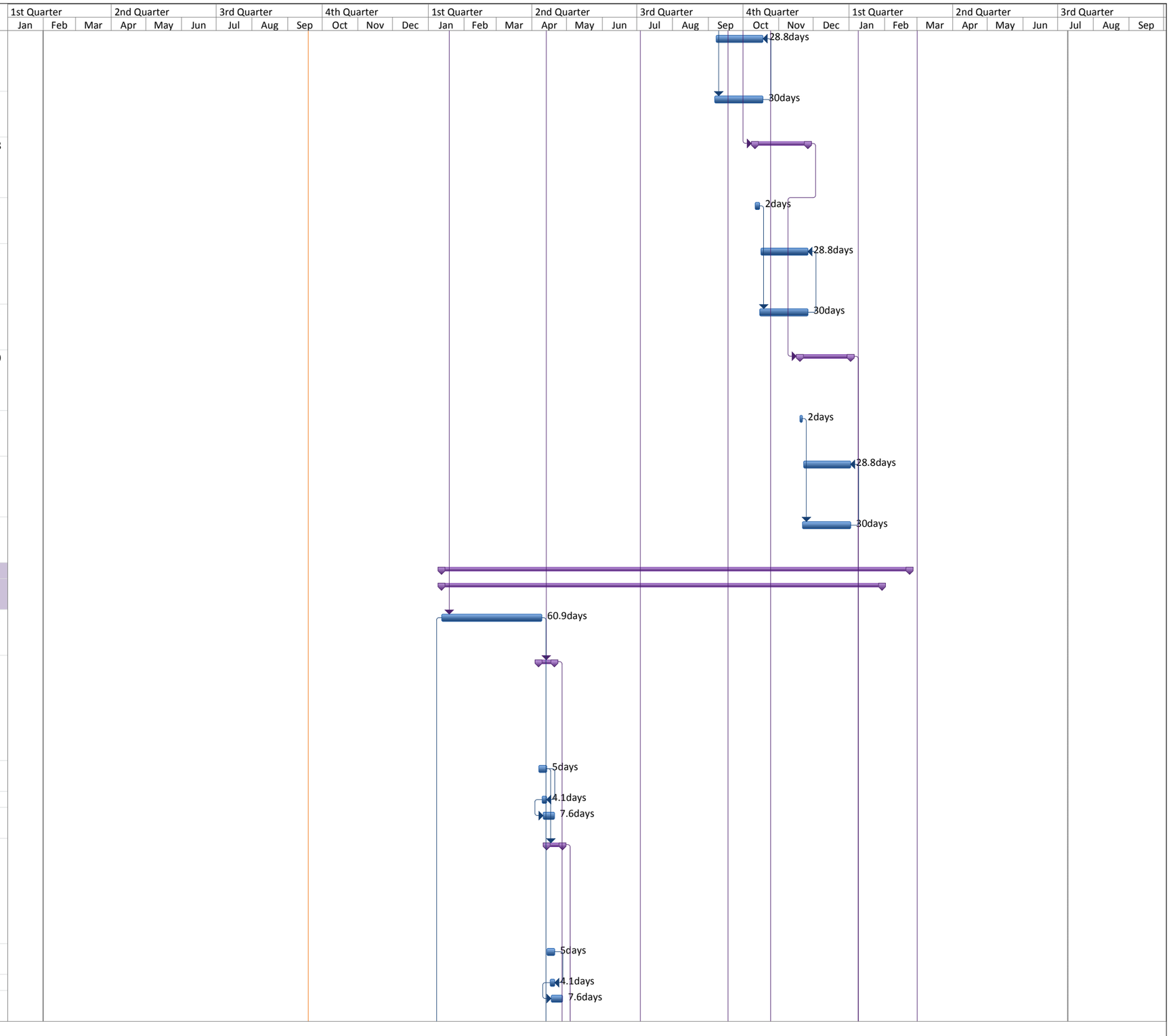
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
59		**Level 01 to Level 02, include suspended slab to Level 02**	**32days**	**Tue 05/09/17**	**Thu 19/10/17**
60		Concrete columns to Level 01	2days	Tue 05/09/17	Thu 07/09/17
61		Concrete stair and elevators cores to Level 01	28.8days	Mon 11/09/17	Thu 19/10/17
62		Concrete suspended slab to Level 02	30days	Thu 07/09/17	Thu 19/10/17
63		**Level 02 to Level 03, include suspended slab to Level 03**	**35.2days**	**Thu 12/10/17**	**Fri 01/12/17**
64		Concrete columns to Level 02	2.2days	Thu 12/10/17	Tue 17/10/17
65		Concrete stair and elevators cores to Level 02	31.6days	Wed 18/10/17	Fri 01/12/17
66		Concrete suspended slab to Level 03	33days	Tue 17/10/17	Fri 01/12/17
67		**Level 03 to Level 04, include suspended slab to Level 04**	**35.2days**	**Fri 24/11/17**	**Fri 12/01/18**
68		Concrete columns to Level 03	2.2days	Fri 24/11/17	Tue 28/11/17
69		Concrete stair and elevators cores to Level 03	31.6days	Wed 29/11/17	Fri 12/01/18
70		Concrete suspended slab to Level 04	33days	Tue 28/11/17	Fri 12/01/18
71		**Level 04 to Level 05, include suspended slab to Level 05**	**35.2days**	**Fri 05/01/18**	**Fri 23/02/18**
72		Concrete columns to Level 04	2.2days	Fri 05/01/18	Tue 09/01/18
73		Concrete stair and elevators cores to Level 04	31.6days	Wed 10/01/18	Fri 23/02/18
74		Concrete suspended slab to Level 05	33days	Tue 09/01/18	Fri 23/02/18
75		**Level 05 to Level 06, include suspended slab to Level 06**	**35.2days**	**Fri 16/02/18**	**Fri 06/04/18**
76		Concrete columns to Level 05	2.2days	Fri 16/02/18	Tue 20/02/18
77		Concrete stair and elevators cores to Level 05	31.6days	Thu 22/02/18	Fri 06/04/18



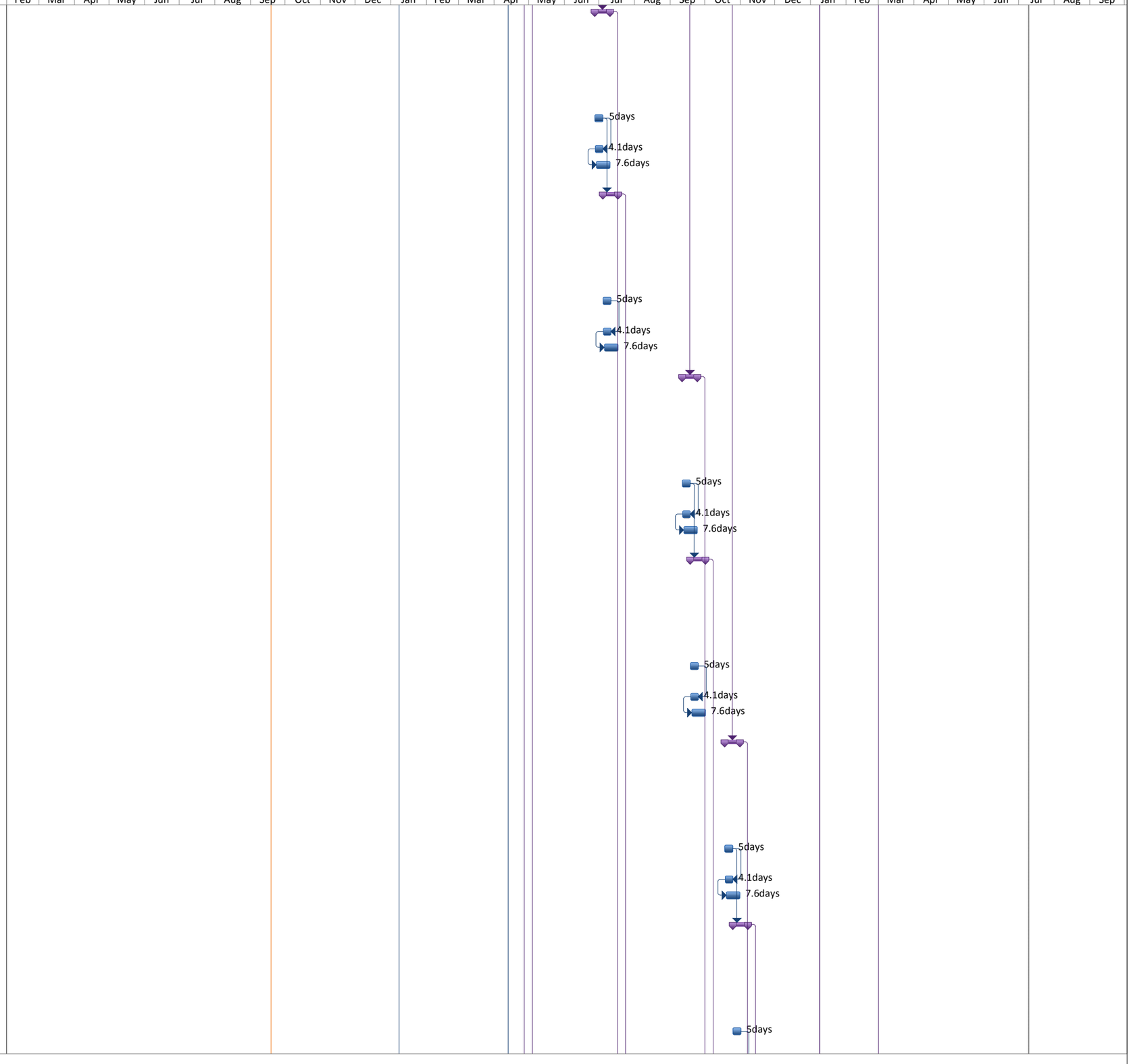
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
78		Concrete suspended slab to Level 06	33days	Tue 20/02/18	Fri 06/04/18
79		**Level 06 to Level 07, include suspended slab to Level 07**	**35.2days**	**Fri 30/03/18**	**Fri 18/05/18**
80		Concrete columns to Level 06	2.2days	Fri 30/03/18	Tue 03/04/18
81		Concrete stair and elevators cores to Level 06	31.6days	Thu 05/04/18	Fri 18/05/18
82		Concrete suspended slab to Level 07	33days	Tue 03/04/18	Fri 18/05/18
83		**Level 07 to Level 08, include suspended slab to Level 08**	**32.2days**	**Fri 11/05/18**	**Wed 27/06/18**
84		Concrete columns to Level 07	2.2days	Fri 11/05/18	Wed 16/05/18
85		Concrete stair and elevators cores to Level 07	28.8days	Thu 17/05/18	Wed 27/06/18
86		Concrete suspended slab to Level 08	30days	Wed 16/05/18	Wed 27/06/18
87		**Level 08 to Level 09, include suspended slab to Level 09**	**32days**	**Wed 20/06/18**	**Fri 03/08/18**
88		Concrete columns to Level 08	2days	Wed 20/06/18	Fri 22/06/18
89		Concrete stair and elevators cores to Level 08	28.8days	Mon 25/06/18	Fri 03/08/18
90		Concrete suspended slab to Level 09	30days	Fri 22/06/18	Fri 03/08/18
91		**Level 09 to Level 10, include suspended slab to Level 10**	**32days**	**Fri 27/07/18**	**Tue 11/09/18**
92		Concrete columns to Level 09	2days	Fri 27/07/18	Tue 31/07/18
93		Concrete stair and elevators cores to Level 09	28.8days	Wed 01/08/18	Tue 11/09/18
94		Concrete suspended slab to Level 10	30days	Tue 31/07/18	Tue 11/09/18
95		**Level 10 to Level 11, include suspended slab to Level 11**	**32days**	**Tue 04/09/18**	**Thu 18/10/18**
96		Concrete columns to Level 10	2days	Tue 04/09/18	Thu 06/09/18



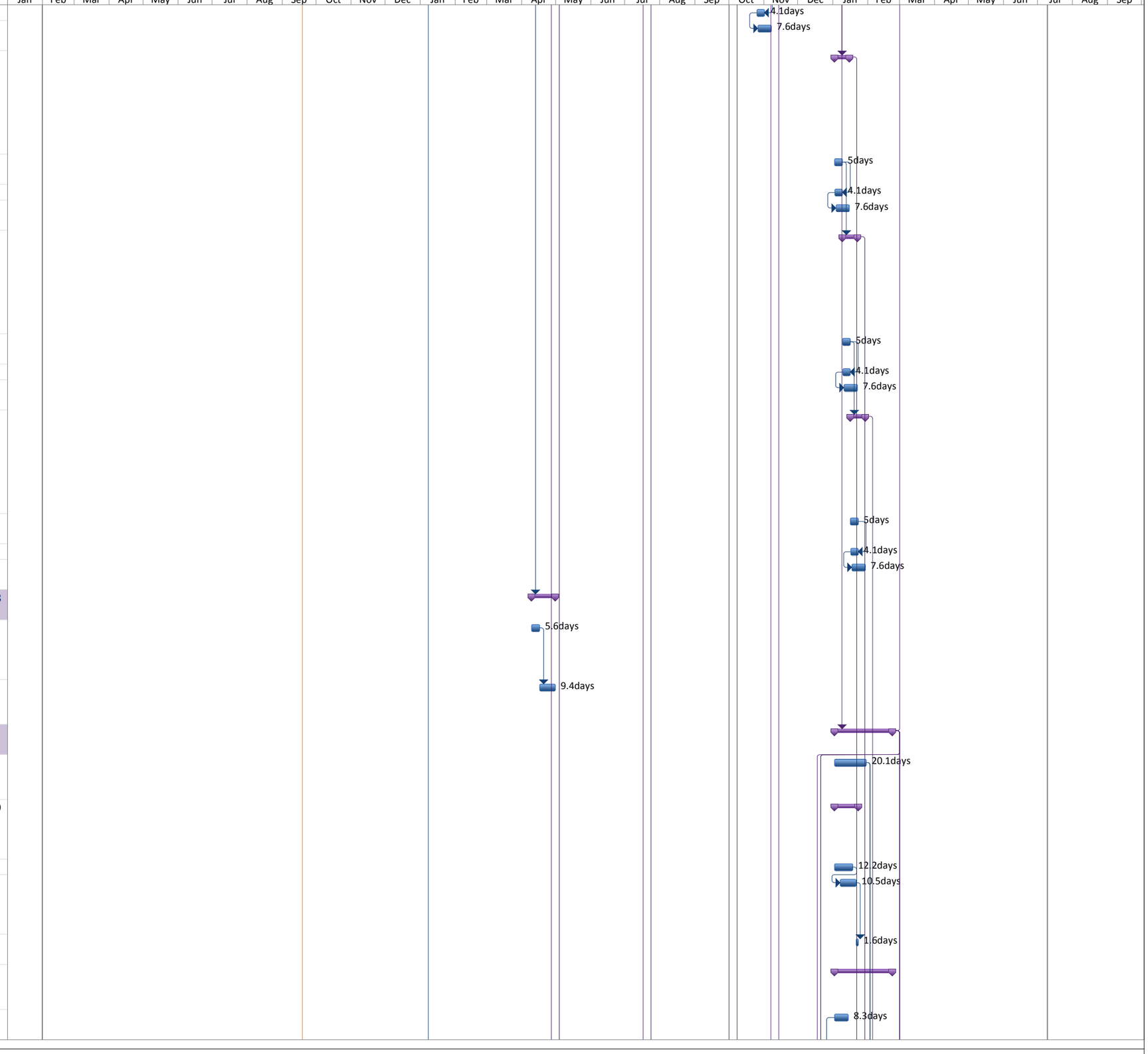
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
97		Concrete stair and elevators cores to Level 10	28.8days	Fri 07/09/18	Thu 18/10/18
98		Concrete suspended slab to Level 11	30days	Thu 06/09/18	Thu 18/10/18
99		**Level 11 to Level 12, include suspended slab to Level 12**	**32days**	**Thu 11/10/18**	**Mon 26/11/18**
100		Concrete columns to Level 11	2days	Thu 11/10/18	Mon 15/10/18
101		Concrete stair and elevators cores to Level 11	28.8days	Tue 16/10/18	Mon 26/11/18
102		Concrete suspended slab to Level 12	30days	Mon 15/10/18	Mon 26/11/18
103		**Level 12 to Roof, include suspended slab to Roof**	**32days**	**Mon 19/11/18**	**Wed 02/01/19**
104		Concrete columns to Level 12	2days	Mon 19/11/18	Wed 21/11/18
105		Concrete stair and elevators cores to Level 12	28.8days	Thu 22/11/18	Wed 02/01/19
106		Concrete suspended slab to Roof	30days	Wed 21/11/18	Wed 02/01/19
107		**A3 Exterior Enclosure**	**290.1days**	**Fri 12/01/18**	**Fri 22/02/19**
108		**A32 Walls Above Grade**	**272.3days**	**Fri 12/01/18**	**Tue 29/01/19**
109		Level 01. Double glazed curtain wall assembly	60.9days	Fri 12/01/18	Mon 09/04/18
110		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**9.5days**	**Fri 06/04/18**	**Fri 20/04/18**
111		EW-1, EW-2 to Level 02	5days	Fri 06/04/18	Fri 13/04/18
112		Vapour barrier	4.1days	Mon 09/04/18	Fri 13/04/18
113		16 mm GWB wall board	7.6days	Tue 10/04/18	Fri 20/04/18
114		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**9.5days**	**Fri 13/04/18**	**Fri 27/04/18**
115		EW-1, EW-2 to Level 03	5days	Fri 13/04/18	Fri 20/04/18
116		Vapour barrier	4.1days	Mon 16/04/18	Fri 20/04/18
117		16 mm GWB wall board	7.6days	Tue 17/04/18	Fri 27/04/18



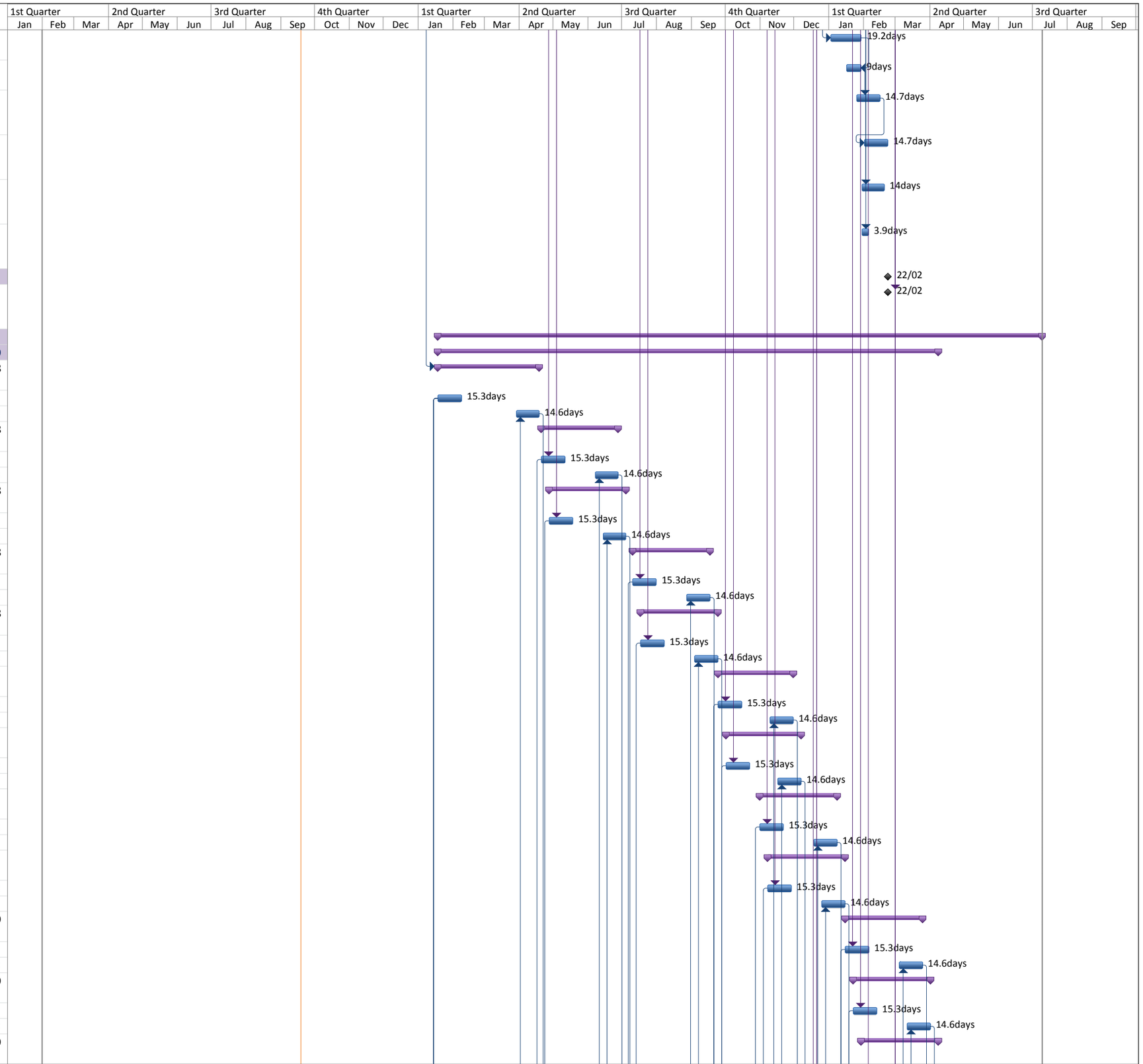
ID		Task Mode	Task Name	Rounded Duration	Start	Finish
118			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**9.5days**	**Wed 27/06/18**	**Tue 10/07/18**
119			EW-1, EW-2 to Level 04	5days	Wed 27/06/18	Wed 04/07/18
120			Vapour barrier	4.1days	Wed 27/06/18	Wed 04/07/18
121			16 mm GWB wall board	7.6days	Thu 28/06/18	Tue 10/07/18
122			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**9.5days**	**Wed 04/07/18**	**Tue 17/07/18**
123			EW-1, EW-2 to Level 05	5days	Wed 04/07/18	Wed 11/07/18
124			Vapour barrier	4.1days	Wed 04/07/18	Wed 11/07/18
125			16 mm GWB wall board	7.6days	Thu 05/07/18	Tue 17/07/18
126			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**9.5days**	**Tue 11/09/18**	**Mon 24/09/18**
127			EW-1, EW-2 to Level 06	5days	Tue 11/09/18	Tue 18/09/18
128			Vapour barrier	4.1days	Tue 11/09/18	Tue 18/09/18
129			16 mm GWB wall board	7.6days	Wed 12/09/18	Mon 24/09/18
130			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**9.5days**	**Tue 18/09/18**	**Mon 01/10/18**
131			EW-1, EW-2 to Level 07	5days	Tue 18/09/18	Tue 25/09/18
132			Vapour barrier	4.1days	Tue 18/09/18	Tue 25/09/18
133			16 mm GWB wall board	7.6days	Wed 19/09/18	Mon 01/10/18
134			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**9.5days**	**Thu 18/10/18**	**Wed 31/10/18**
135			EW-1, EW-2 to Level 08	5days	Thu 18/10/18	Thu 25/10/18
136			Vapour barrier	4.1days	Thu 18/10/18	Thu 25/10/18
137			16 mm GWB wall board	7.6days	Fri 19/10/18	Wed 31/10/18
138			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**9.5days**	**Thu 25/10/18**	**Wed 07/11/18**
139			EW-1, EW-2 to Level 09	5days	Thu 25/10/18	Thu 01/11/18



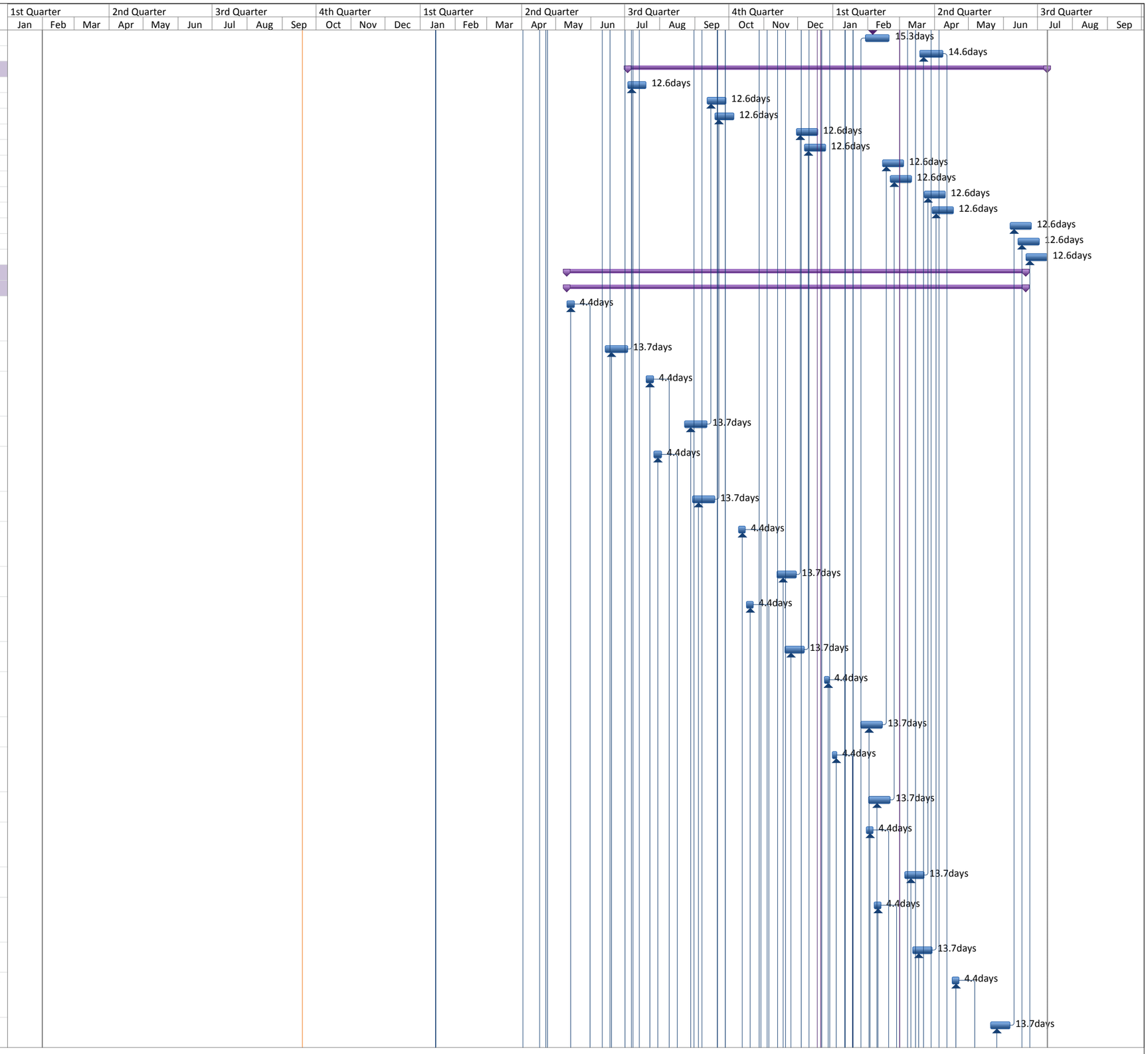
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
140		Vapour barrier	4.1days	Thu 25/10/18	Thu 01/11/18
141		16 mm GWB wall board	7.6days	Fri 26/10/18	Wed 07/11/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**9.5days**	**Wed 02/01/19**	**Tue 15/01/19**
143		EW-1, EW-2 to Level 10	5days	Wed 02/01/19	Wed 09/01/19
144		Vapour barrier	4.1days	Wed 02/01/19	Wed 09/01/19
145		16 mm GWB wall board	7.6days	Thu 03/01/19	Tue 15/01/19
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**9.5days**	**Wed 09/01/19**	**Tue 22/01/19**
147		EW-1, EW-2 to Level 11	5days	Wed 09/01/19	Wed 16/01/19
148		Vapour barrier	4.1days	Wed 09/01/19	Wed 16/01/19
149		16 mm GWB wall board	7.6days	Thu 10/01/19	Tue 22/01/19
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**9.5days**	**Wed 16/01/19**	**Tue 29/01/19**
151		EW-1, EW-2 to Level 12	5days	Wed 16/01/19	Wed 23/01/19
152		Vapour barrier	4.1days	Wed 16/01/19	Wed 23/01/19
153		16 mm GWB wall board	7.6days	Thu 17/01/19	Tue 29/01/19
154		**A33 Windows and entrancies**	**15days**	**Mon 09/04/18**	**Mon 30/04/18**
155		Glazed vestibule door c/w frame, standard hardware	5.6days	Mon 09/04/18	Mon 16/04/18
156		Exterior metal doors c/w frame and hardware	9.4days	Mon 16/04/18	Mon 30/04/18
157		**A34 Roof Coverings**	**37.3days**	**Wed 02/01/19**	**Fri 22/02/19**
158		Hardscape. Precast concrete pavers	20.1days	Wed 02/01/19	Wed 30/01/19
159		**Greenscape. Landscaping, indigenous plants + grasses**	**15.2days**	**Wed 02/01/19**	**Wed 23/01/19**
160		Planting beds	12.2days	Wed 02/01/19	Fri 18/01/19
161		Top soil placement and grading by hand	10.5days	Mon 07/01/19	Mon 21/01/19
162		Mechanical seeding	1.6days	Mon 21/01/19	Wed 23/01/19
163		**Modified bituminous membrane**	**37.3days**	**Wed 02/01/19**	**Fri 22/02/19**
164		6 mm vapour barier	8.3days	Wed 02/01/19	Mon 14/01/19



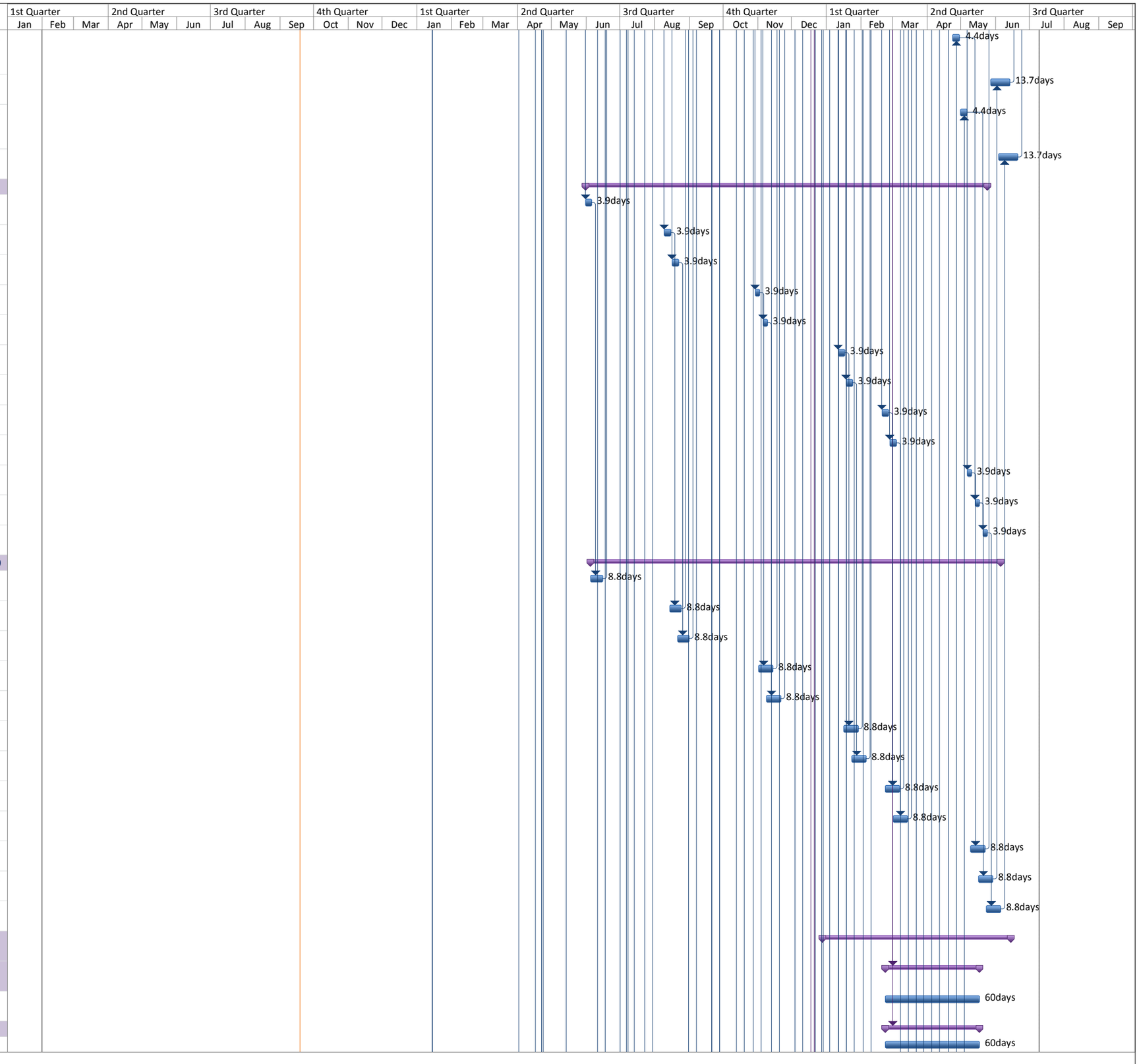
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
165		150 mm rigid insulation	19.2days	Wed 02/01/19	Tue 29/01/19
166		12 mm plywood	9days	Wed 16/01/19	Tue 29/01/19
167		Bituminous membrane base layer	14.7days	Fri 25/01/19	Fri 15/02/19
168		Bituminous membrane finish layer	14.7days	Fri 01/02/19	Fri 22/02/19
169		Bikespace. Engineered wood fibre	14days	Wed 30/01/19	Tue 19/02/19
170		Gymspace. Engineered wood fibre	3.9days	Wed 30/01/19	Tue 05/02/19
171		**A35 Projections**	**0days**	**Fri 22/02/19**	**Fri 22/02/19**
172		All projections included in relative sections	0days	Fri 22/02/19	Fri 22/02/19
173		**B1 Partitions and Doors**	**383.2days**	**Thu 18/01/18**	**Tue 09/07/19**
174		**B11 Partitions**	**316.9days**	**Thu 18/01/18**	**Mon 08/04/19**
175		**GWB partitions to Level 01**	**64.3days**	**Thu 18/01/18**	**Wed 18/04/18**
176		Metal studs	15.3days	Thu 18/01/18	Thu 08/02/18
177		GWB	14.6days	Thu 29/03/18	Wed 18/04/18
178		**GWB partitions to Level 02**	**48.6days**	**Fri 20/04/18**	**Wed 27/06/18**
179		Metal studs	15.3days	Fri 20/04/18	Fri 11/05/18
180		GWB	14.6days	Thu 07/06/18	Wed 27/06/18
181		**GWB partitions to Level 03**	**48.6days**	**Fri 27/04/18**	**Wed 04/07/18**
182		Metal studs	15.3days	Fri 27/04/18	Fri 18/05/18
183		GWB	14.6days	Thu 14/06/18	Wed 04/07/18
184		**GWB partitions to Level 04**	**48.6days**	**Tue 10/07/18**	**Mon 17/09/18**
185		Metal studs	15.3days	Tue 10/07/18	Tue 31/07/18
186		GWB	14.6days	Mon 27/08/18	Mon 17/09/18
187		**GWB partitions to Level 05**	**48.6days**	**Tue 17/07/18**	**Mon 24/09/18**
188		Metal studs	15.3days	Tue 17/07/18	Tue 07/08/18
189		GWB	14.6days	Mon 03/09/18	Mon 24/09/18
190		**GWB partitions to Level 06**	**48.6days**	**Mon 24/09/18**	**Fri 30/11/18**
191		Metal studs	15.3days	Mon 24/09/18	Mon 15/10/18
192		GWB	14.6days	Fri 09/11/18	Fri 30/11/18
193		**GWB partitions to Level 07**	**48.6days**	**Mon 01/10/18**	**Fri 07/12/18**
194		Metal studs	15.3days	Mon 01/10/18	Mon 22/10/18
195		GWB	14.6days	Fri 16/11/18	Fri 07/12/18
196		**GWB partitions to Level 08**	**48.6days**	**Wed 31/10/18**	**Tue 08/01/19**
197		Metal studs	15.3days	Wed 31/10/18	Wed 21/11/18
198		GWB	14.6days	Tue 18/12/18	Tue 08/01/19
199		**GWB partitions to Level 09**	**48.6days**	**Wed 07/11/18**	**Tue 15/01/19**
200		Metal studs	15.3days	Wed 07/11/18	Wed 28/11/18
201		GWB	14.6days	Tue 25/12/18	Tue 15/01/19
202		**GWB partitions to Level 10**	**48.6days**	**Tue 15/01/19**	**Mon 25/03/19**
203		Metal studs	15.3days	Tue 15/01/19	Tue 05/02/19
204		GWB	14.6days	Mon 04/03/19	Mon 25/03/19
205		**GWB partitions to Level 11**	**48.6days**	**Tue 22/01/19**	**Mon 01/04/19**
206		Metal studs	15.3days	Tue 22/01/19	Tue 12/02/19
207		GWB	14.6days	Mon 11/03/19	Mon 01/04/19
208		**GWB partitions to Level 12**	**48.6days**	**Tue 29/01/19**	**Mon 08/04/19**



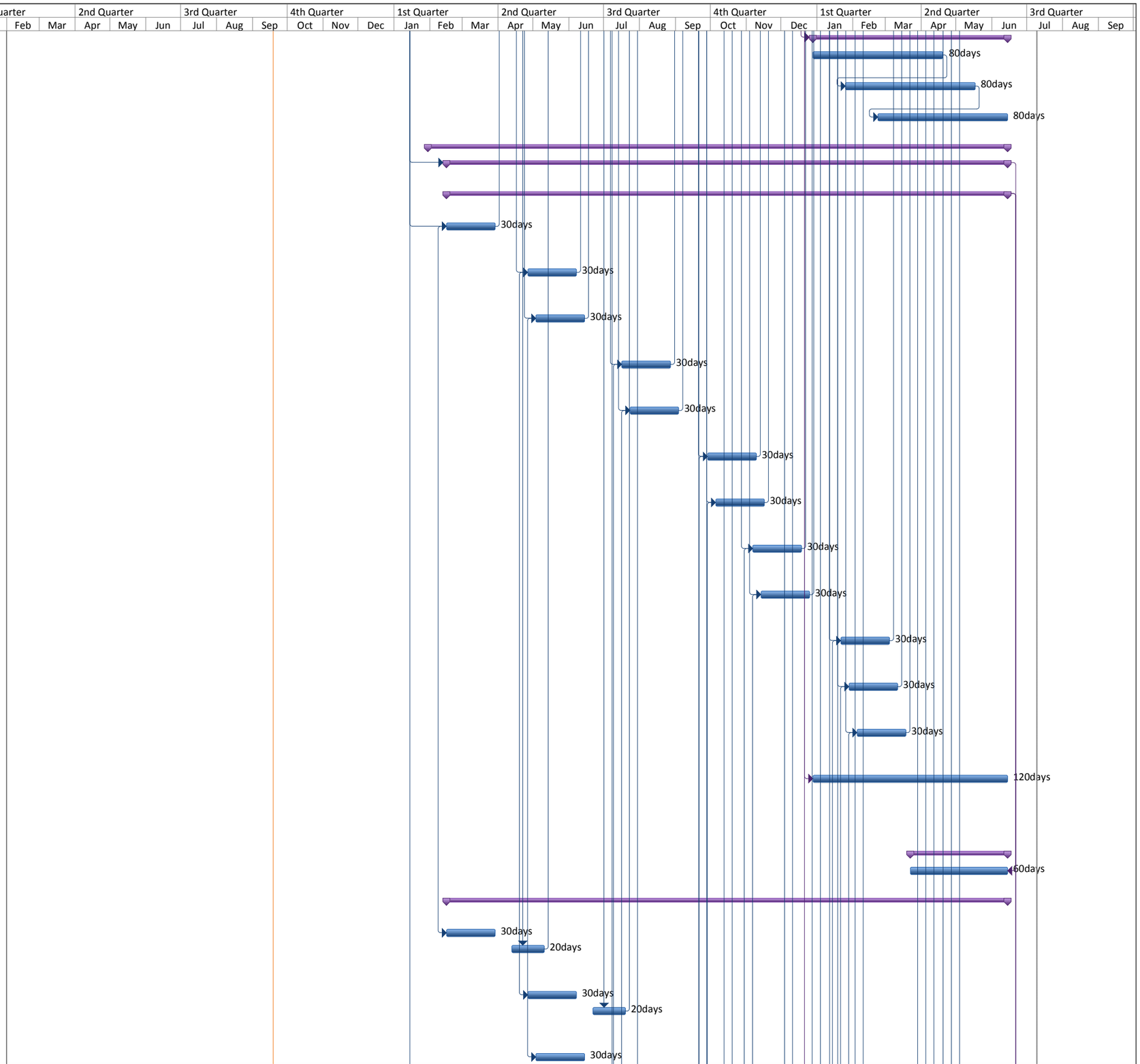
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
209		Metal studs	15.3days	Tue 29/01/19	Tue 19/02/19
210		GWB	14.6days	Mon 18/03/19	Mon 08/04/19
211		**B12 Doors**	**265.1days**	**Tue 03/07/18**	**Tue 09/07/19**
212		Doors to Level 01	12.6days	Tue 03/07/18	Thu 19/07/18
213		Doors to Level 02	12.6days	Tue 11/09/18	Fri 28/09/18
214		Doors to Level 03	12.6days	Tue 18/09/18	Fri 05/10/18
215		Doors to Level 04	12.6days	Thu 29/11/18	Tue 18/12/18
216		Doors to Level 05	12.6days	Thu 06/12/18	Tue 25/12/18
217		Doors to Level 06	12.6days	Wed 13/02/19	Mon 04/03/19
218		Doors to Level 07	12.6days	Wed 20/02/19	Mon 11/03/19
219		Doors to Level 08	12.6days	Fri 22/03/19	Wed 10/04/19
220		Doors to Level 09	12.6days	Fri 29/03/19	Wed 17/04/19
221		Doors to Level 10	12.6days	Thu 06/06/19	Tue 25/06/19
222		Doors to Level 11	12.6days	Thu 13/06/19	Tue 02/07/19
223		Doors to Level 12	12.6days	Thu 20/06/19	Tue 09/07/19
224		**B2 Finishes**	**290.3days**	**Thu 10/05/18**	**Thu 20/06/19**
225		**B21 Floor Finishes**	**290.3days**	**Thu 10/05/18**	**Thu 20/06/19**
226		50mm concrete topping to Level 01	4.4days	Thu 10/05/18	Thu 17/05/18
227		Floor finishes to Level 01	13.7days	Wed 13/06/18	Tue 03/07/18
228		50mm concrete topping to Level 02	4.4days	Thu 19/07/18	Thu 26/07/18
229		Floor finishes to Level 02	13.7days	Wed 22/08/18	Tue 11/09/18
230		50mm concrete topping to Level 03	4.4days	Thu 26/07/18	Thu 02/08/18
231		Floor finishes to Level 03	13.7days	Wed 29/08/18	Tue 18/09/18
232		50mm concrete topping to Level 04	4.4days	Tue 09/10/18	Mon 15/10/18
233		Floor finishes to Level 04	13.7days	Mon 12/11/18	Thu 29/11/18
234		50mm concrete topping to Level 05	4.4days	Tue 16/10/18	Mon 22/10/18
235		Floor finishes to Level 05	13.7days	Mon 19/11/18	Thu 06/12/18
236		50mm concrete topping to Level 06	4.4days	Mon 24/12/18	Fri 28/12/18
237		Floor finishes to Level 06	13.7days	Fri 25/01/19	Wed 13/02/19
238		50mm concrete topping to Level 07	4.4days	Mon 31/12/18	Fri 04/01/19
239		Floor finishes to Level 07	13.7days	Fri 01/02/19	Wed 20/02/19
240		50mm concrete topping to Level 08	4.4days	Wed 30/01/19	Tue 05/02/19
241		Floor finishes to Level 08	13.7days	Tue 05/03/19	Fri 22/03/19
242		50mm concrete topping to Level 09	4.4days	Wed 06/02/19	Tue 12/02/19
243		Floor finishes to Level 09	13.7days	Tue 12/03/19	Fri 29/03/19
244		50mm concrete topping to Level 10	4.4days	Tue 16/04/19	Mon 22/04/19
245		Floor finishes to Level 10	13.7days	Mon 20/05/19	Thu 06/06/19



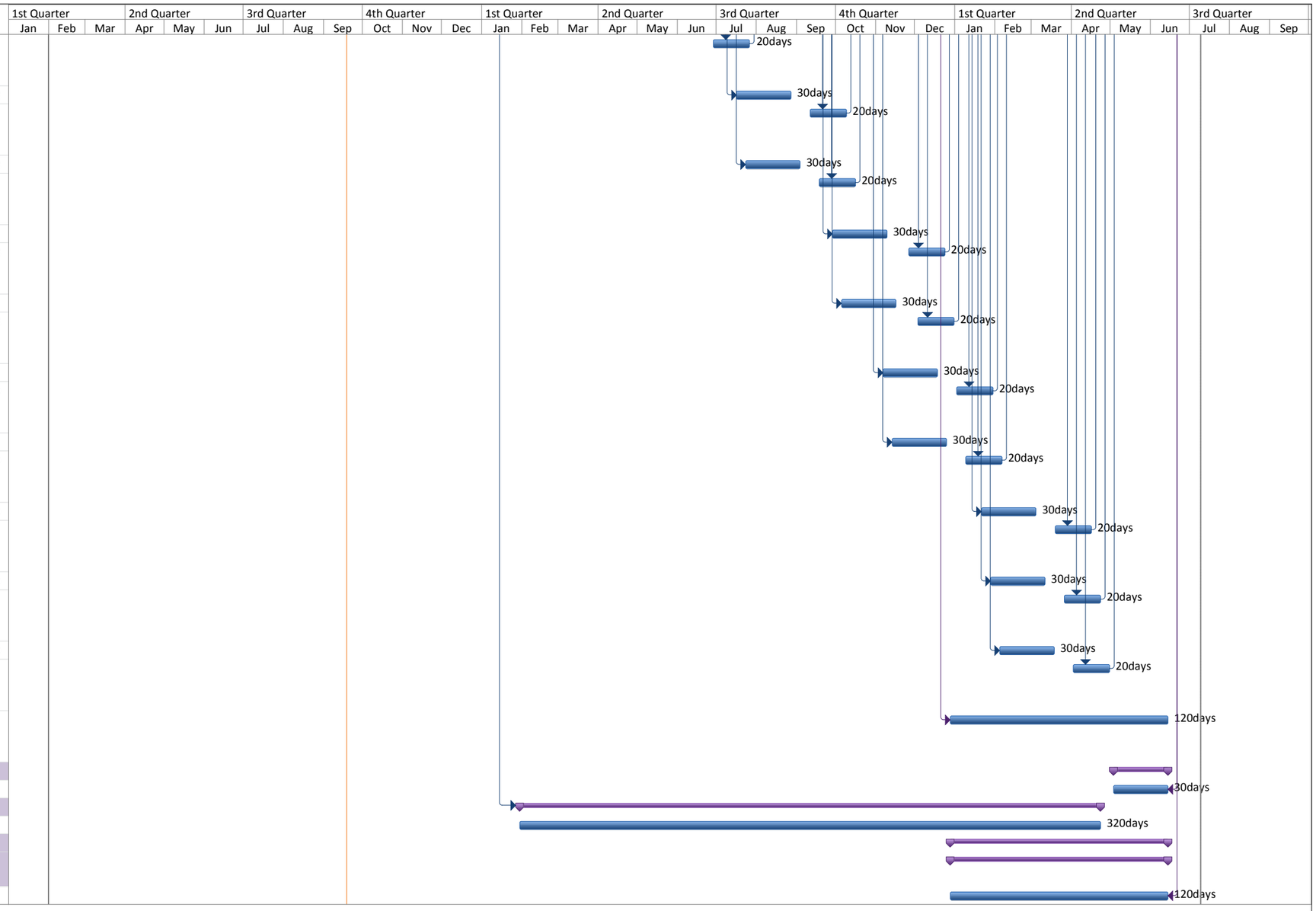
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
246		50mm concrete topping to Level 11	4.4days	Tue 23/04/19	Mon 29/04/19
247		Floor finishes to Level 11	13.7days	Mon 27/05/19	Thu 13/06/19
248		50mm concrete topping to Level 12	4.4days	Tue 30/04/19	Mon 06/05/19
249		Floor finishes to Level 12	13.7days	Mon 03/06/19	Thu 20/06/19
250		**B22 Ceiling Finishes**	**256.5days**	**Thu 31/05/18**	**Fri 24/05/19**
251		Ceiling finishes to Level 01	3.9days	Thu 31/05/18	Tue 05/06/18
252		Ceiling finishes to Level 02	3.9days	Thu 09/08/18	Wed 15/08/18
253		Ceiling finishes to Level 03	3.9days	Thu 16/08/18	Wed 22/08/18
254		Ceiling finishes to Level 04	3.9days	Mon 29/10/18	Fri 02/11/18
255		Ceiling finishes to Level 05	3.9days	Mon 05/11/18	Fri 09/11/18
256		Ceiling finishes to Level 06	3.9days	Fri 11/01/19	Thu 17/01/19
257		Ceiling finishes to Level 07	3.9days	Fri 18/01/19	Thu 24/01/19
258		Ceiling finishes to Level 08	3.9days	Tue 19/02/19	Mon 25/02/19
259		Ceiling finishes to Level 09	3.9days	Tue 26/02/19	Mon 04/03/19
260		Ceiling finishes to Level 10	3.9days	Mon 06/05/19	Fri 10/05/19
261		Ceiling finishes to Level 11	3.9days	Mon 13/05/19	Fri 17/05/19
262		Ceiling finishes to Level 12	3.9days	Mon 20/05/19	Fri 24/05/19
263		**B23 Wall Finishes**	**261.4days**	**Mon 04/06/18**	**Wed 05/06/19**
264		Wall finishes to Level 01	8.8days	Mon 04/06/18	Fri 15/06/18
265		Wall finishes to Level 02	8.8days	Tue 14/08/18	Fri 24/08/18
266		Wall finishes to Level 03	8.8days	Tue 21/08/18	Fri 31/08/18
267		Wall finishes to Level 04	8.8days	Thu 01/11/18	Wed 14/11/18
268		Wall finishes to Level 05	8.8days	Thu 08/11/18	Wed 21/11/18
269		Wall finishes to Level 06	8.8days	Wed 16/01/19	Tue 29/01/19
270		Wall finishes to Level 07	8.8days	Wed 23/01/19	Tue 05/02/19
271		Wall finishes to Level 08	8.8days	Fri 22/02/19	Thu 07/03/19
272		Wall finishes to Level 09	8.8days	Fri 01/03/19	Thu 14/03/19
273		Wall finishes to Level 10	8.8days	Thu 09/05/19	Wed 22/05/19
274		Wall finishes to Level 11	8.8days	Thu 16/05/19	Wed 29/05/19
275		Wall finishes to Level 12	8.8days	Thu 23/05/19	Wed 05/06/19
276		**B3 Fittings and Equipment**	**120days**	**Fri 28/12/18**	**Fri 14/06/19**
277		**B31 Fittings and Fixtures**	**60days**	**Fri 22/02/19**	**Fri 17/05/19**
278		Fittings and fixtures	60days	Fri 22/02/19	Fri 17/05/19
279		**B32 Equipment**	**60days**	**Fri 22/02/19**	**Fri 17/05/19**
280		Equipment	60days	Fri 22/02/19	Fri 17/05/19



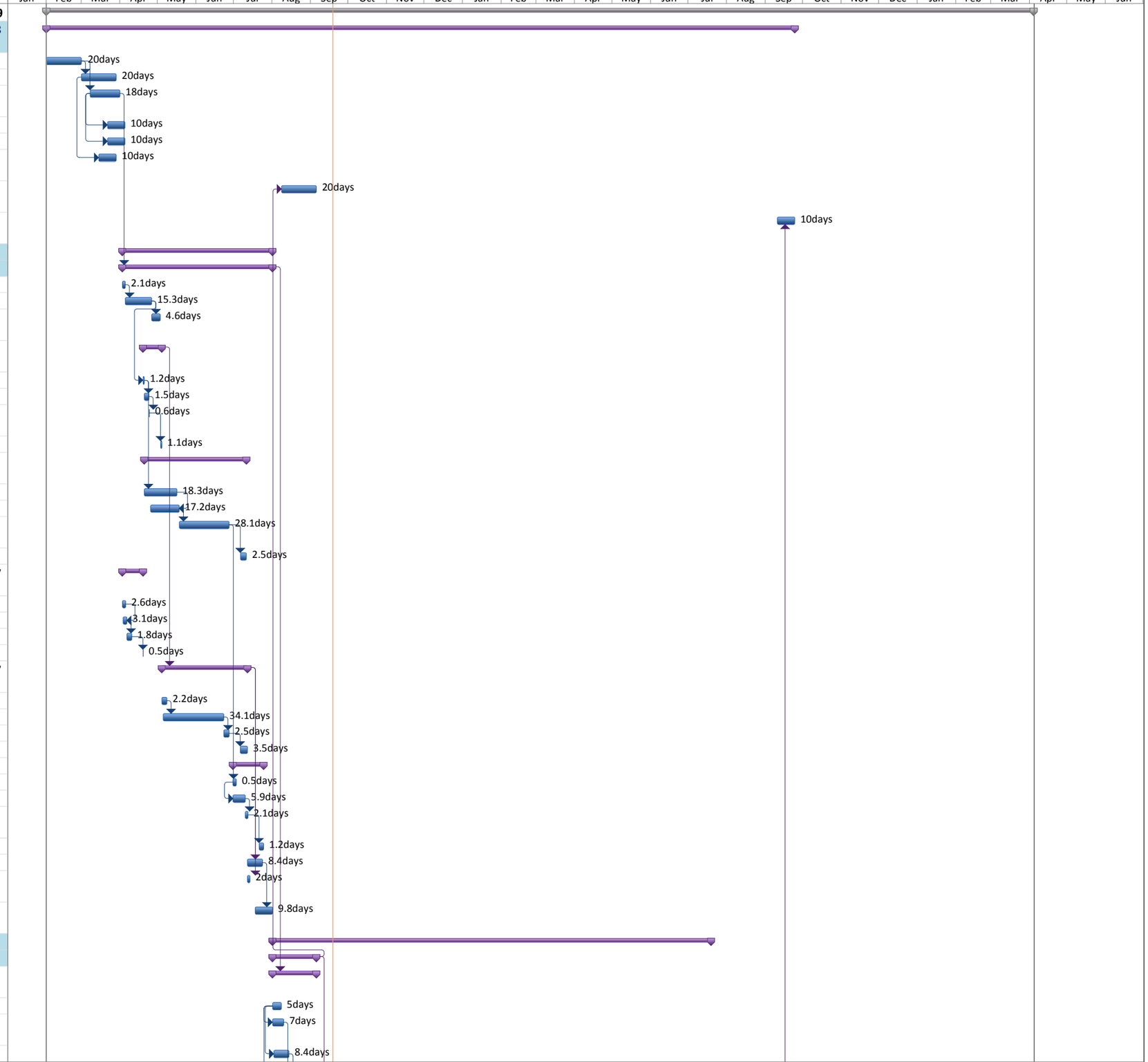
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
281		**B33 Elevators**	**120days**	**Fri 28/12/18**	**Fri 14/06/19**
282		Elevators to section 01	80days	Fri 28/12/18	Fri 19/04/19
283		Elevators to section 02	80days	Fri 25/01/19	Fri 17/05/19
284		Elevators to section 03	80days	Fri 22/02/19	Fri 14/06/19
285		**C. Services**	**358.3days**	**Tue 30/01/18**	**Fri 14/06/19**
286		**C1. Mechanical Services**	**346.3days**	**Thu 15/02/18**	**Fri 14/06/19**
287		**C11. Plumbing and Drainage**	**346.3days**	**Thu 15/02/18**	**Fri 14/06/19**
288		Mechanical elements to Level 01	30days	Thu 15/02/18	Thu 29/03/18
289		Mechanical elements to Level 02	30days	Thu 26/04/18	Thu 07/06/18
290		Mechanical elements to Level 03	30days	Thu 03/05/18	Thu 14/06/18
291		Mechanical elements to Level 04	30days	Mon 16/07/18	Mon 27/08/18
292		Mechanical elements to Level 05	30days	Mon 23/07/18	Mon 03/09/18
293		Mechanical elements to Level 06	30days	Fri 28/09/18	Fri 09/11/18
294		Mechanical elements to Level 07	30days	Fri 05/10/18	Fri 16/11/18
295		Mechanical elements to Level 08	30days	Tue 06/11/18	Tue 18/12/18
296		Mechanical elements to Level 09	30days	Tue 13/11/18	Tue 25/12/18
297		Mechanical elements to Level 10	30days	Mon 21/01/19	Mon 04/03/19
298		Mechanical elements to Level 11	30days	Mon 28/01/19	Mon 11/03/19
299		Mechanical elements to Level 12	30days	Mon 04/02/19	Mon 18/03/19
300		Mechanical elements other, include mechanical rooms	120days	Fri 28/12/18	Fri 14/06/19
301		**C12. Fire Protection**	**60days**	**Fri 22/03/19**	**Fri 14/06/19**
302		Fire protection services	60days	Fri 22/03/19	Fri 14/06/19
303		**C13. HVAC. Radiant floor heating.**	**346.3days**	**Thu 15/02/18**	**Fri 14/06/19**
304		HVAC to Level 01	30days	Thu 15/02/18	Thu 29/03/18
305		Radiant floor heating to Level 01	20days	Thu 12/04/18	Thu 10/05/18
306		HVAC to Level 02	30days	Thu 26/04/18	Thu 07/06/18
307		Radiant floor heating to Level 02	20days	Thu 21/06/18	Thu 19/07/18
308		HVAC to Level 03	30days	Thu 03/05/18	Thu 14/06/18



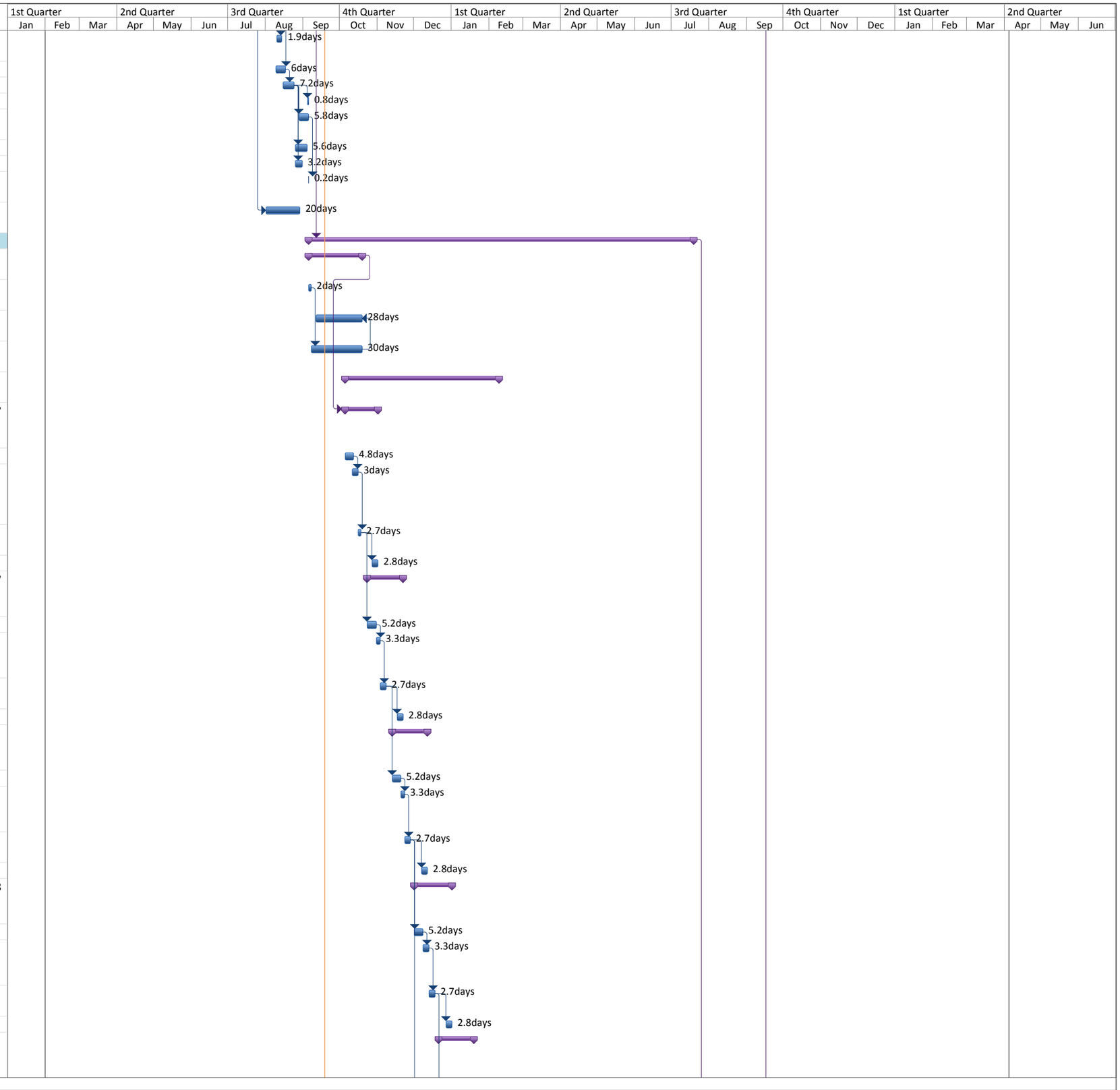
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
309		Radiant floor heating to Level 03	20days	Thu 28/06/18	Thu 26/07/18
310		HVAC to Level 04	30days	Mon 16/07/18	Mon 27/08/18
311		Radiant floor heating to Level 04	20days	Tue 11/09/18	Tue 09/10/18
312		HVAC to Level 05	30days	Mon 23/07/18	Mon 03/09/18
313		Radiant floor heating to Level 05	20days	Tue 18/09/18	Tue 16/10/18
314		HVAC to Level 06	30days	Fri 28/09/18	Fri 09/11/18
315		Radiant floor heating to Level 06	20days	Mon 26/11/18	Mon 24/12/18
316		HVAC to Level 07	30days	Fri 05/10/18	Fri 16/11/18
317		Radiant floor heating to Level 07	20days	Mon 03/12/18	Mon 31/12/18
318		HVAC to Level 08	30days	Tue 06/11/18	Tue 18/12/18
319		Radiant floor heating to Level 08	20days	Wed 02/01/19	Wed 30/01/19
320		HVAC to Level 09	30days	Tue 13/11/18	Tue 25/12/18
321		Radiant floor heating to Level 09	20days	Wed 09/01/19	Wed 06/02/19
322		HVAC to Level 10	30days	Mon 21/01/19	Mon 04/03/19
323		Radiant floor heating to Level 10	20days	Tue 19/03/19	Tue 16/04/19
324		HVAC to Level 11	30days	Mon 28/01/19	Mon 11/03/19
325		Radiant floor heating to Level 11	20days	Tue 26/03/19	Tue 23/04/19
326		HVAC to Level 12	30days	Mon 04/02/19	Mon 18/03/19
327		Radiant floor heating to Level 12	20days	Tue 02/04/19	Tue 30/04/19
328		Other HVAC to the rest of builduing	120days	Fri 28/12/18	Fri 14/06/19
329		**C14. Controls**	**30days**	**Fri 03/05/19**	**Fri 14/06/19**
330		DDC Controls	30days	Fri 03/05/19	Fri 14/06/19
331		**C2. Elecrtical Services**	**320days**	**Tue 30/01/18**	**Tue 23/04/19**
332		Electrical Services	320days	Tue 30/01/18	Tue 23/04/19
333		**D1. Site Work**	**120days**	**Fri 28/12/18**	**Fri 14/06/19**
334		**D11. Site Development**	**120days**	**Fri 28/12/18**	**Fri 14/06/19**
335		Site work	120days	Fri 28/12/18	Fri 14/06/19



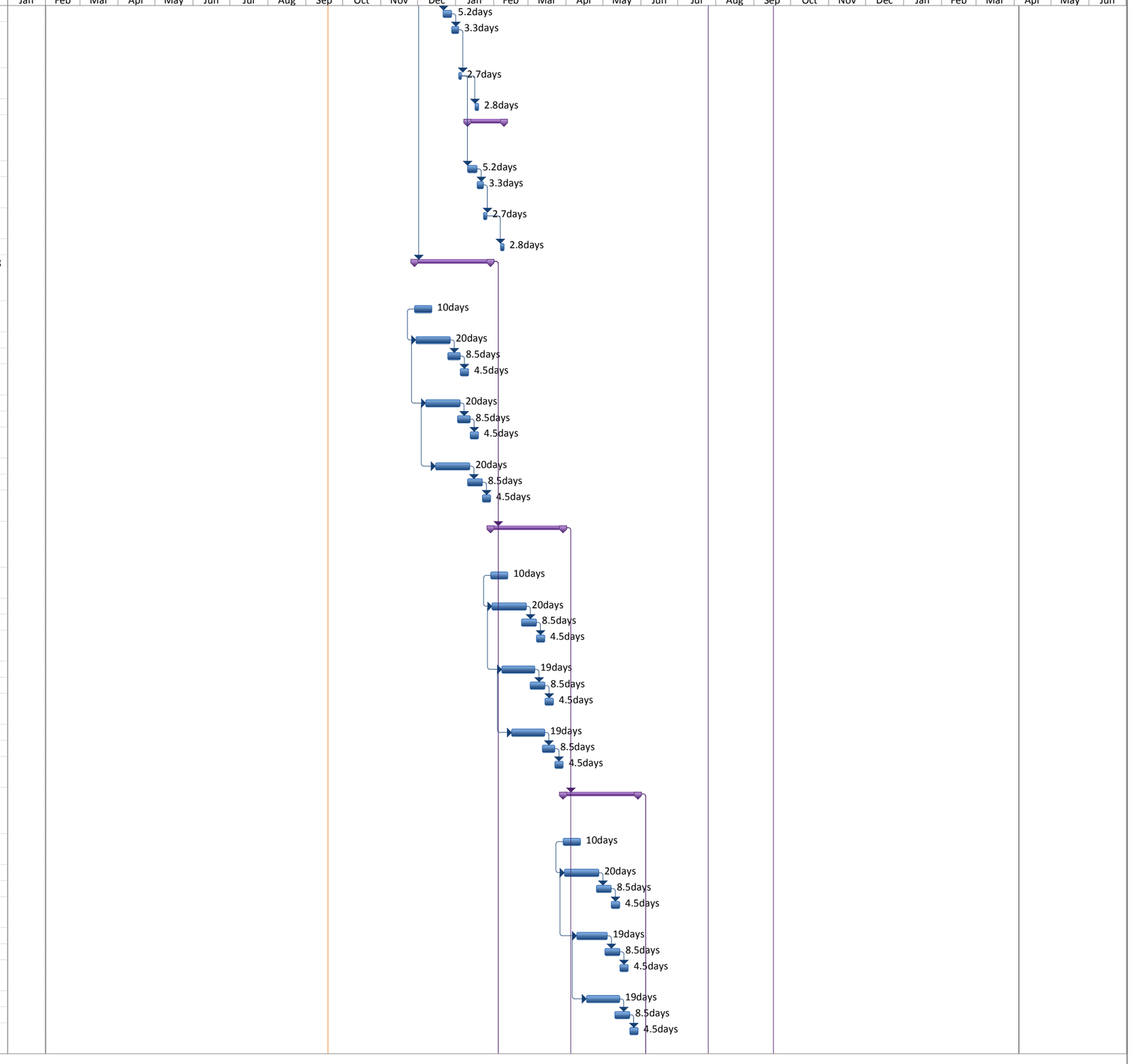
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Steel Frame Building - Residential**	**566.1days**	**Wed 01/02/17**	**Thu 04/04/19**
1		**General Conditions and Management**	**428.7days**	**Wed 01/02/17**	**Mon 24/09/18**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 3 cranes	20days	Tue 08/08/17	Tue 05/09/17
9		Tower cranes dismantle - 3 cranes	10days	Mon 10/09/18	Mon 24/09/18
10		**A1 Substructure**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
11		**A11 Foundations**	**86.3days**	**Mon 03/04/17**	**Tue 01/08/17**
12		Clearing and grubbing	2.1days	Mon 03/04/17	Wed 05/04/17
13		Excavation	15.3days	Wed 05/04/17	Wed 26/04/17
14		Perimeter drain c/w filter socket and granular cover	4.6days	Wed 26/04/17	Wed 03/05/17
15		**Reinforced concrete strip footing**	**11.5days**	**Wed 19/04/17**	**Thu 04/05/17**
16		Concrete reinforcement	1.2days	Wed 19/04/17	Thu 20/04/17
17		Formwork to sides	1.5days	Thu 20/04/17	Mon 24/04/17
18		Concrete placing by pumps	0.6days	Mon 24/04/17	Mon 24/04/17
19		Stripping formwork	1.1days	Wed 03/05/17	Thu 04/05/17
20		**Reinforced concrete pad footing to columns**	**57.9days**	**Thu 20/04/17**	**Tue 11/07/17**
21		Concrete reinforcement	18.3days	Thu 20/04/17	Tue 16/05/17
22		Formwork to sides	17.2days	Tue 25/04/17	Thu 18/05/17
23		Concrete placing by pumps	28.1days	Thu 18/05/17	Tue 27/06/17
24		Stripping formwork	2.5days	Thu 06/07/17	Tue 11/07/17
25		**Raft slab below elevator & stair cores**	**12.8days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2.6days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.8days	Thu 06/04/17	Mon 10/04/17
29		Stripping formwork	0.5days	Wed 19/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**48.3days**	**Thu 04/05/17**	**Wed 12/07/17**
31		Concrete reinforcement	2.2days	Thu 04/05/17	Mon 08/05/17
32		Formwork to sides	34.1days	Fri 05/05/17	Fri 23/06/17
33		Concrete placing by pump	2.5days	Fri 23/06/17	Tue 27/06/17
34		Stripping formwork	3.5days	Thu 06/07/17	Wed 12/07/17
35		**Piers. Reinforced concrete**	**16.2days**	**Fri 30/06/17**	**Tue 25/07/17**
36		Concrete reinforcement	0.5days	Fri 30/06/17	Mon 03/07/17
37		Formwork to sides	5.9days	Fri 30/06/17	Mon 10/07/17
38		Concrete placing by pumps	2.1days	Mon 10/07/17	Wed 12/07/17
39		Stripping formwork	1.2days	Fri 21/07/17	Tue 25/07/17
40		Extraover for dampproofing	8.4days	Wed 12/07/17	Mon 24/07/17
41		Allowance for expansion joint	2days	Wed 12/07/17	Fri 14/07/17
42		Backfill excavated area c/w compaction	9.8days	Tue 18/07/17	Tue 01/08/17
43		**A2 Structure**	**252.1days**	**Tue 01/08/17**	**Thu 19/07/18**
44		**A21 Lowest Floor Construction**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
45		**250 mm reinforced concrete slab**	**25.6days**	**Tue 01/08/17**	**Tue 05/09/17**
46		6 mm vapour barrier	5days	Tue 01/08/17	Tue 08/08/17
47		300 mm granular fill compacted slab	7days	Tue 01/08/17	Thu 10/08/17
48		75 mm rigid insulation	8.4days	Wed 02/08/17	Mon 14/08/17



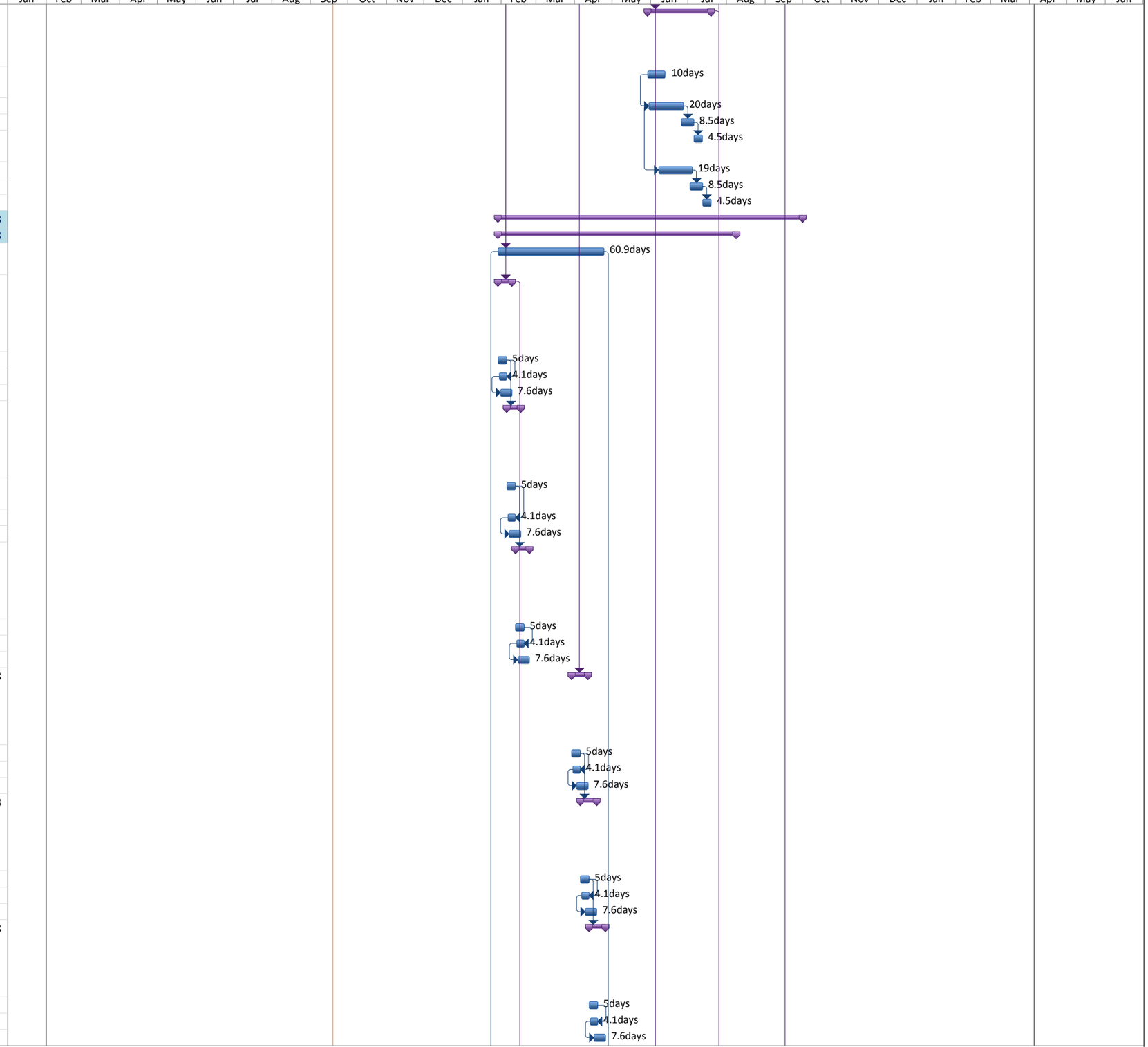
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
49		Formwork to openings	1.9days	Thu 10/08/17	Mon 14/08/17
50		Concrete reinforcement	6days	Wed 09/08/17	Thu 17/08/17
51		Concrete placing by pump	7.2days	Tue 15/08/17	Thu 24/08/17
52		Stripping formwork	0.8days	Mon 04/09/17	Tue 05/09/17
53		Finishing	5.8days	Mon 28/08/17	Tue 05/09/17
54		Water curing	5.6days	Fri 25/08/17	Mon 04/09/17
55		Sheet membrane curing	3.2days	Fri 25/08/17	Thu 31/08/17
56		Sawcut control joints	0.2days	Tue 05/09/17	Tue 05/09/17
57		Civil works. General civil infrastructure allowance	20days	Tue 01/08/17	Tue 29/08/17
58		**A22 Upper Floor Construction**	**226.5days**	**Tue 05/09/17**	**Thu 19/07/18**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**32days**	**Tue 05/09/17**	**Thu 19/10/17**
60		Concrete columns to Level 01	2days	Tue 05/09/17	Thu 07/09/17
61		Concrete stair and elevators cores to Level 01	28days	Mon 11/09/17	Thu 19/10/17
62		Concrete suspended slab to Level 02	30days	Thu 07/09/17	Thu 19/10/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**90.1days**	**Thu 05/10/17**	**Fri 09/02/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 5 cores**	**18.8days**	**Thu 05/10/17**	**Wed 01/11/17**
65		Rebar	4.8days	Thu 05/10/17	Thu 12/10/17
66		Installation of customed engineered formwork. Height for 2 floors	3days	Wed 11/10/17	Mon 16/10/17
67		Concrete placing by pumps	2.7days	Mon 16/10/17	Wed 18/10/17
68		Stripping formwork	2.8days	Fri 27/10/17	Wed 01/11/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 5 cores**	**21.1days**	**Mon 23/10/17**	**Wed 22/11/17**
70		Rebar	5.2days	Mon 23/10/17	Tue 31/10/17
71		Installation of engineered formwork. Height for 2 floors	3.3days	Tue 31/10/17	Fri 03/11/17
72		Concrete placing by pumps	2.7days	Fri 03/11/17	Wed 08/11/17
73		Stripping formwork	2.8days	Fri 17/11/17	Wed 22/11/17
74		**Concrete stair and elevator cores to Level 06, Level 07. 5 cores**	**21.1days**	**Mon 13/11/17**	**Tue 12/12/17**
75		Rebar	5.2days	Mon 13/11/17	Mon 20/11/17
76		Installation of engineered formwork. Height for 2 floors	3.3days	Mon 20/11/17	Thu 23/11/17
77		Concrete placing by pumps	2.7days	Thu 23/11/17	Tue 28/11/17
78		Stripping formwork	2.8days	Thu 07/12/17	Tue 12/12/17
79		**Concrete stair and elevator cores to Level 08, Level 09. 5 cores**	**21.1days**	**Fri 01/12/17**	**Mon 01/01/18**
80		Rebar	5.2days	Fri 01/12/17	Fri 08/12/17
81		Installation of engineered formwork. Height for 2 floors	3.3days	Fri 08/12/17	Wed 13/12/17
82		Concrete placing by pumps	2.7days	Wed 13/12/17	Mon 18/12/17
83		Stripping formwork	2.8days	Wed 27/12/17	Mon 01/01/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 5 cores**	**21.1days**	**Thu 21/12/17**	**Fri 19/01/18**



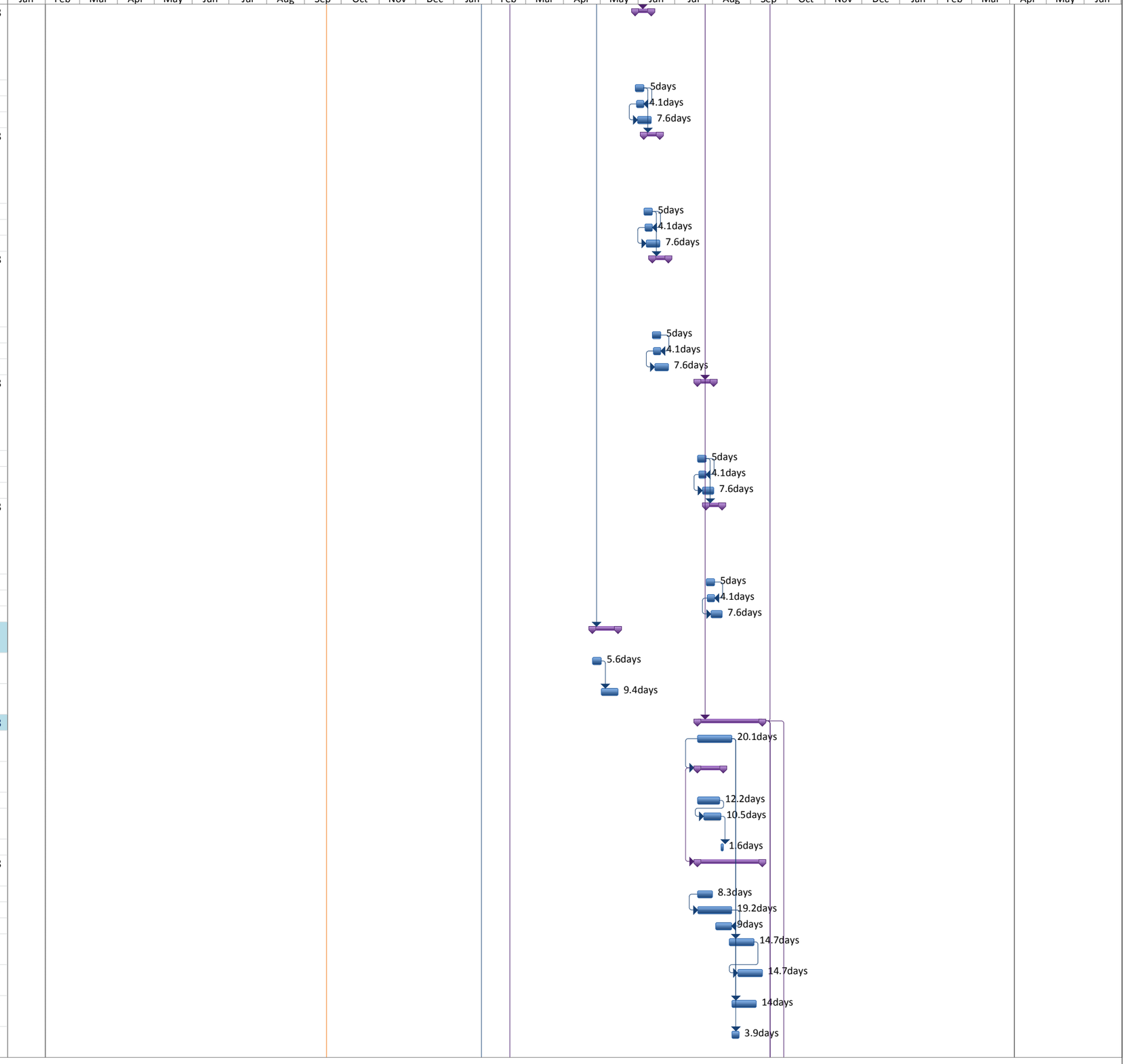
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
85		Rebar	5.2days	Thu 21/12/17	Thu 28/12/17
86		Installation of engineered formwork. Height for 2 floors	3.3days	Thu 28/12/17	Wed 03/01/18
87		Concrete placing by pumps	2.7days	Wed 03/01/18	Fri 05/01/18
88		Stripping formwork	2.8days	Tue 16/01/18	Fri 19/01/18
89		**Concrete stair and elevator cores to Level 12, Roof. 5 cores**	**21.1days**	**Wed 10/01/18**	**Fri 09/02/18**
90		Rebar	5.2days	Wed 10/01/18	Thu 18/01/18
91		Installation of engineered formwork	3.3days	Thu 18/01/18	Tue 23/01/18
92		Concrete placing by pumps	2.7days	Tue 23/01/18	Fri 26/01/18
93		Stripping formwork	2.8days	Tue 06/02/18	Fri 09/02/18
94		**Steel Frame c/w columns to Level 02-04. Beams, bracing and steel deck to Level 03-05**	**44days**	**Tue 28/11/17**	**Mon 29/01/18**
95		Steel columns. 3 floors height.	10days	Tue 28/11/17	Tue 12/12/17
96		Beams, bracing to Level 02	20days	Wed 29/11/17	Wed 27/12/17
97		Steel deck to Level 03	8.5days	Mon 25/12/17	Thu 04/01/18
98		Concrete topping to Level 03	4.5days	Thu 04/01/18	Thu 11/01/18
99		Beams, bracing to Level 03	20days	Thu 07/12/17	Thu 04/01/18
100		Steel deck to Level 04	8.5days	Tue 02/01/18	Fri 12/01/18
101		Concrete topping to Level 04	4.5days	Fri 12/01/18	Fri 19/01/18
102		Beams, bracing to Level 04	20days	Fri 15/12/17	Fri 12/01/18
103		Steel deck to Level 05	8.5days	Wed 10/01/18	Mon 22/01/18
104		Concrete topping to Level 05	4.5days	Mon 22/01/18	Mon 29/01/18
105		**Steel Frame c/w columns to Level 05-07. Beams, bracing and steel deck to Level 06-08**	**43days**	**Mon 29/01/18**	**Thu 29/03/18**
106		Steel columns. 3 floors height.	10days	Mon 29/01/18	Mon 12/02/18
107		Beams, bracing to Level 05	20days	Tue 30/01/18	Tue 27/02/18
108		Steel deck to Level 06	8.5days	Fri 23/02/18	Wed 07/03/18
109		Concrete topping to Level 06	4.5days	Wed 07/03/18	Wed 14/03/18
110		Beams, bracing to Level 06	19days	Wed 07/02/18	Tue 06/03/18
111		Steel deck to Level 07	8.5days	Fri 02/03/18	Wed 14/03/18
112		Concrete topping to Level 07	4.5days	Wed 14/03/18	Wed 21/03/18
113		Beams, bracing to Level 07	19days	Thu 15/02/18	Wed 14/03/18
114		Steel deck to Level 08	8.5days	Mon 12/03/18	Thu 22/03/18
115		Concrete topping to Level 08	4.5days	Thu 22/03/18	Thu 29/03/18
116		**Steel Frame c/w columns to Level 08-10. Beams, bracing and steel deck to Level 09-11**	**43days**	**Thu 29/03/18**	**Tue 29/05/18**
117		Steel columns. 3 floors height.	10days	Thu 29/03/18	Thu 12/04/18
118		Beams, bracing to Level 08	20days	Fri 30/03/18	Fri 27/04/18
119		Steel deck to Level 09	8.5days	Wed 25/04/18	Mon 07/05/18
120		Concrete topping to Level 09	4.5days	Mon 07/05/18	Mon 14/05/18
121		Beams, bracing to Level 09	19days	Mon 09/04/18	Fri 04/05/18
122		Steel deck to Level 10	8.5days	Wed 02/05/18	Mon 14/05/18
123		Concrete topping to Level 10	4.5days	Mon 14/05/18	Mon 21/05/18
124		Beams, bracing to Level 10	19days	Tue 17/04/18	Mon 14/05/18
125		Steel deck to Level 11	8.5days	Thu 10/05/18	Tue 22/05/18
126		Concrete topping to Level 11	4.5days	Tue 22/05/18	Tue 29/05/18



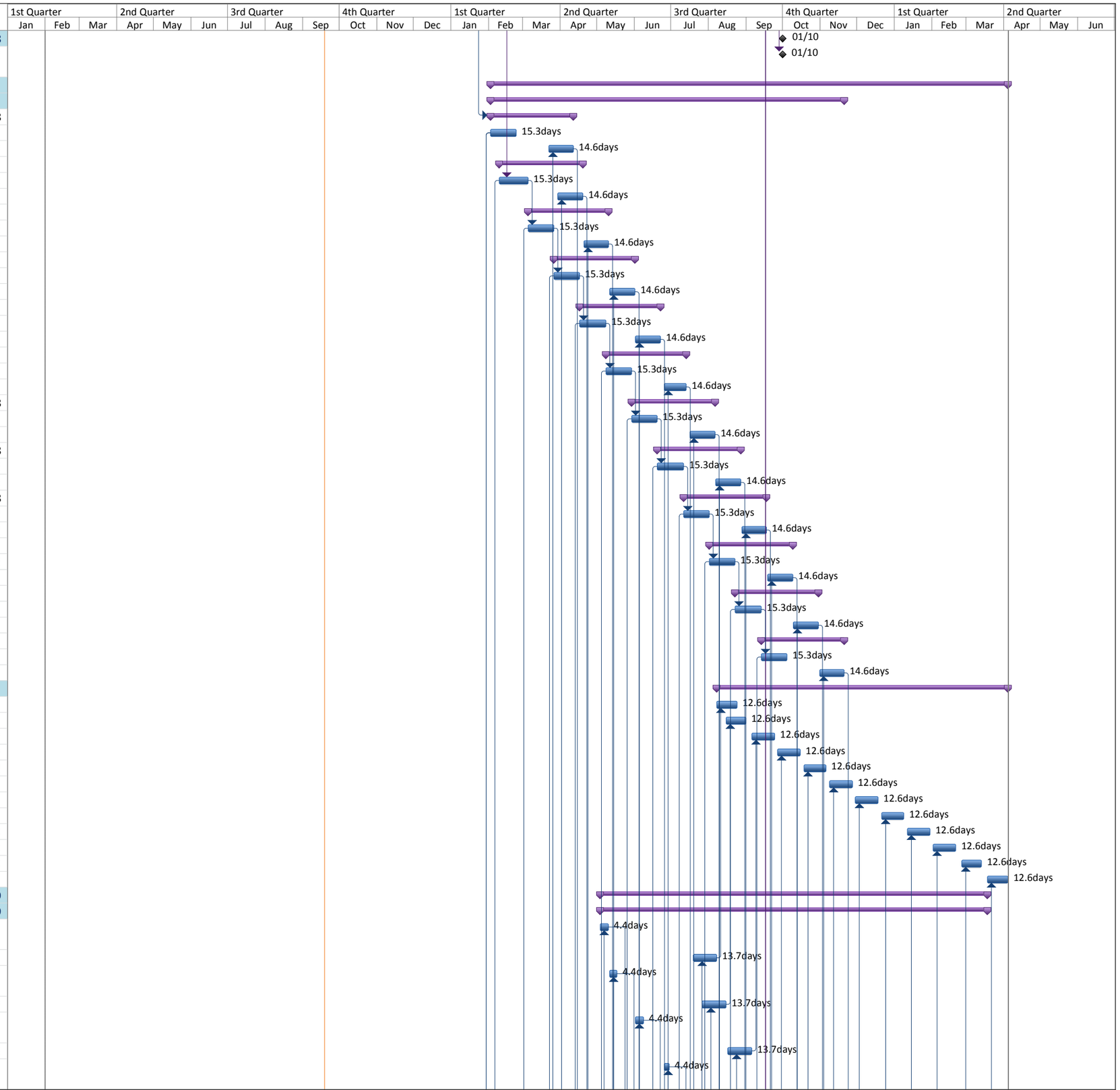
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
127		**Steel Frame c/w columns to Level 11-12. Beams, bracing and steel deck to Level 12-Roof**	**37days**	**Tue 29/05/18**	**Thu 19/07/18**
128		Steel columns. 2 floors height.	10days	Tue 29/05/18	Tue 12/06/18
129		Beams, bracing to Level 11	20days	Wed 30/05/18	Wed 27/06/18
130		Steel deck to Level 12	8.5days	Mon 25/06/18	Thu 05/07/18
131		Concrete topping to Level 12	4.5days	Thu 05/07/18	Thu 12/07/18
132		Beams, bracing to Level 12	19days	Thu 07/06/18	Wed 04/07/18
133		Steel deck to Roof	8.5days	Mon 02/07/18	Thu 12/07/18
134		Concrete topping Roof	4.5days	Thu 12/07/18	Thu 19/07/18
135		**A3 Exterior Enclosure**	**174.6days**	**Mon 29/01/18**	**Mon 01/10/18**
136		**A32 Walls Above Grade**	**137.5days**	**Mon 29/01/18**	**Wed 08/08/18**
137		Level 01. Double glazed curtain wall assembly	60.9days	Mon 29/01/18	Tue 24/04/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**9.5days**	**Mon 29/01/18**	**Fri 09/02/18**
139		EW-1, EW-2 to Level 02	5days	Mon 29/01/18	Mon 05/02/18
140		Vapour barrier	4.1days	Tue 30/01/18	Mon 05/02/18
141		16 mm GWB wall board	7.6days	Wed 31/01/18	Fri 09/02/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**9.5days**	**Mon 05/02/18**	**Fri 16/02/18**
143		EW-1, EW-2 to Level 03	5days	Mon 05/02/18	Mon 12/02/18
144		Vapour barrier	4.1days	Tue 06/02/18	Mon 12/02/18
145		16 mm GWB wall board	7.6days	Wed 07/02/18	Fri 16/02/18
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**9.5days**	**Mon 12/02/18**	**Fri 23/02/18**
147		EW-1, EW-2 to Level 04	5days	Mon 12/02/18	Mon 19/02/18
148		Vapour barrier	4.1days	Tue 13/02/18	Mon 19/02/18
149		16 mm GWB wall board	7.6days	Wed 14/02/18	Fri 23/02/18
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**9.5days**	**Thu 29/03/18**	**Wed 11/04/18**
151		EW-1, EW-2 to Level 05	5days	Thu 29/03/18	Thu 05/04/18
152		Vapour barrier	4.1days	Fri 30/03/18	Thu 05/04/18
153		16 mm GWB wall board	7.6days	Mon 02/04/18	Wed 11/04/18
154		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**9.5days**	**Thu 05/04/18**	**Wed 18/04/18**
155		EW-1, EW-2 to Level 06	5days	Thu 05/04/18	Thu 12/04/18
156		Vapour barrier	4.1days	Fri 06/04/18	Thu 12/04/18
157		16 mm GWB wall board	7.6days	Mon 09/04/18	Wed 18/04/18
158		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**9.5days**	**Thu 12/04/18**	**Wed 25/04/18**
159		EW-1, EW-2 to Level 07	5days	Thu 12/04/18	Thu 19/04/18
160		Vapour barrier	4.1days	Fri 13/04/18	Thu 19/04/18
161		16 mm GWB wall board	7.6days	Mon 16/04/18	Wed 25/04/18



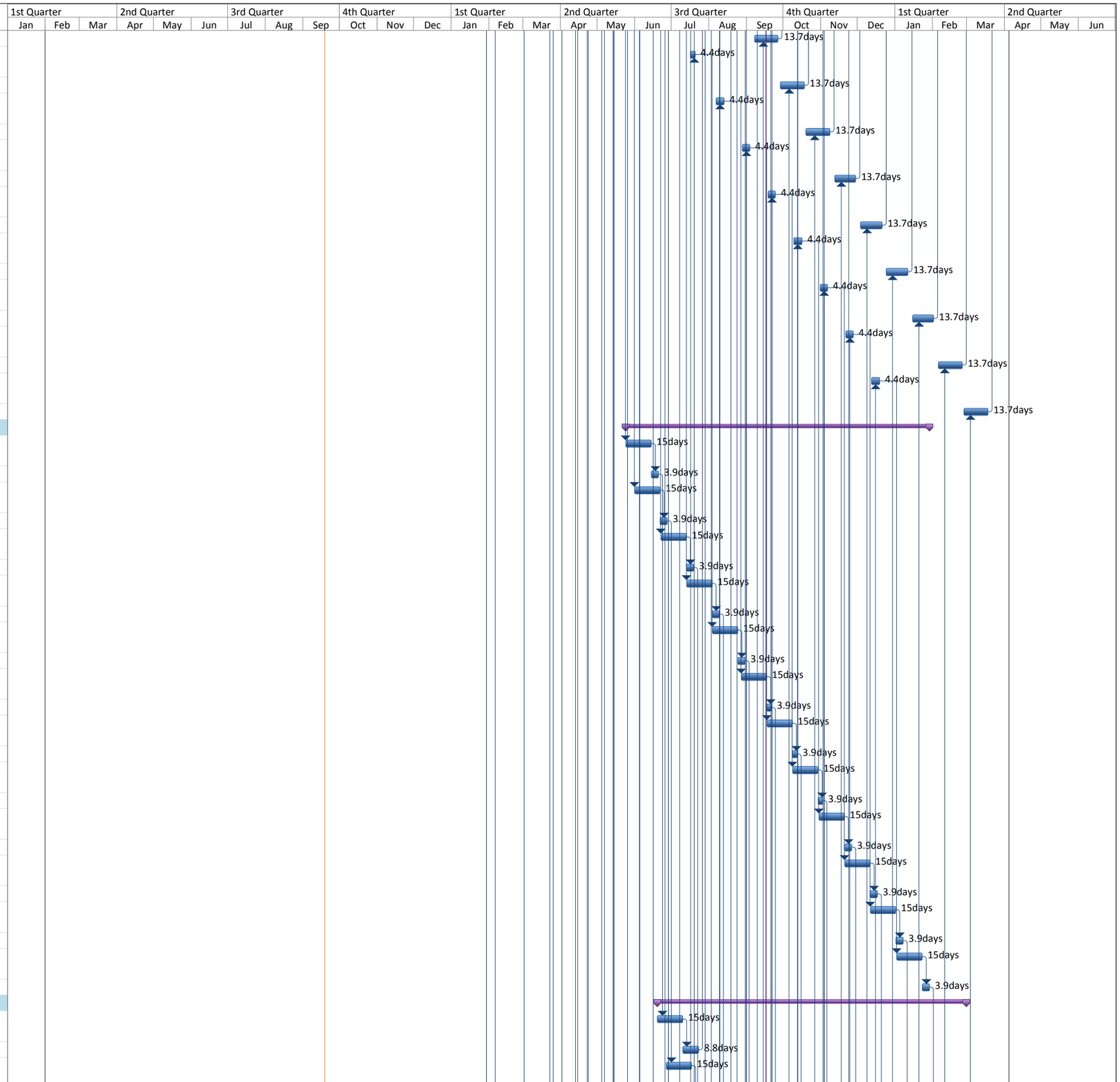
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
162		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**9.5days**	**Tue 29/05/18**	**Mon 11/06/18**
163		EW-1, EW-2 to Level 08	5days	Tue 29/05/18	Tue 05/06/18
164		Vapour barrier	4.1days	Wed 30/05/18	Tue 05/06/18
165		16 mm GWB wall board	7.6days	Thu 31/05/18	Mon 11/06/18
166		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**9.5days**	**Tue 05/06/18**	**Mon 18/06/18**
167		EW-1, EW-2 to Level 09	5days	Tue 05/06/18	Tue 12/06/18
168		Vapour barrier	4.1days	Wed 06/06/18	Tue 12/06/18
169		16 mm GWB wall board	7.6days	Thu 07/06/18	Mon 18/06/18
170		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**9.5days**	**Tue 12/06/18**	**Mon 25/06/18**
171		EW-1, EW-2 to Level 10	5days	Tue 12/06/18	Tue 19/06/18
172		Vapour barrier	4.1days	Wed 13/06/18	Tue 19/06/18
173		16 mm GWB wall board	7.6days	Thu 14/06/18	Mon 25/06/18
174		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**9.5days**	**Thu 19/07/18**	**Wed 01/08/18**
175		EW-1, EW-2 to Level 11	5days	Thu 19/07/18	Thu 26/07/18
176		Vapour barrier	4.1days	Fri 20/07/18	Thu 26/07/18
177		16 mm GWB wall board	7.6days	Mon 23/07/18	Wed 01/08/18
178		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**9.5days**	**Thu 26/07/18**	**Wed 08/08/18**
179		EW-1, EW-2 to Level 12	5days	Thu 26/07/18	Thu 02/08/18
180		Vapour barrier	4.1days	Fri 27/07/18	Thu 02/08/18
181		16 mm GWB wall board	7.6days	Mon 30/07/18	Wed 08/08/18
182		**A33 Windows and entrancies**	**15days**	**Tue 24/04/18**	**Tue 15/05/18**
183		Glazed vestibule door c/w frame, standard hardware	5.6days	Tue 24/04/18	Tue 01/05/18
184		Exterior metal doors c/w frame and hardware	9.4days	Tue 01/05/18	Tue 15/05/18
185		**A34 Roof Coverings**	**37.3days**	**Thu 19/07/18**	**Mon 10/09/18**
186		Hardscape. Precast concrete pavers	20.1days	Thu 19/07/18	Thu 16/08/18
187		**Greenscape. Landscaping, indigenous plants + grasses**	**15.2days**	**Thu 19/07/18**	**Thu 09/08/18**
188		Planting beds	12.2days	Thu 19/07/18	Mon 06/08/18
189		Top soil placement and grading by hand	10.5days	Tue 24/07/18	Tue 07/08/18
190		Mechanical seeding	1.6days	Tue 07/08/18	Thu 09/08/18
191		**Modified bituminous membrane**	**37.3days**	**Thu 19/07/18**	**Mon 10/09/18**
192		6 mm vapour barier	8.3days	Thu 19/07/18	Tue 31/07/18
193		150 mm rigid insulation	19.2days	Thu 19/07/18	Thu 16/08/18
194		12 mm plywood	9days	Fri 03/08/18	Thu 16/08/18
195		Bituminous membrane base layer	14.7days	Tue 14/08/18	Mon 03/09/18
196		Bituminous membrane finish layer	14.7days	Tue 21/08/18	Mon 10/09/18
197		Bikespace. Engineered wood fibre	14days	Thu 16/08/18	Wed 05/09/18
198		Gymspace. Engineered wood fibre	3.9days	Thu 16/08/18	Wed 22/08/18



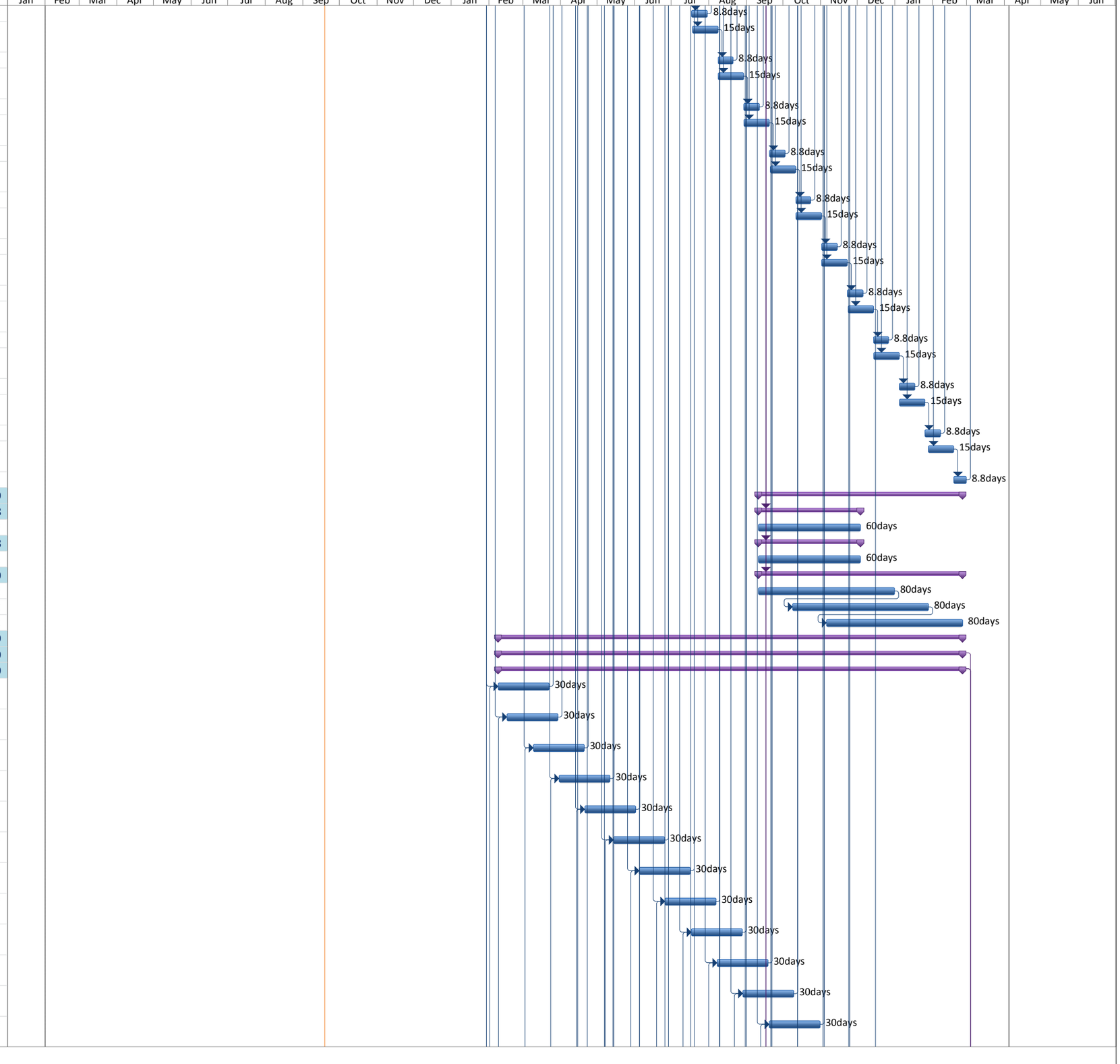
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
199		**A35 Projections**	**0days**	**Mon 01/10/18**	**Mon 01/10/18**
200		All projections included in relative sections	0days	Mon 01/10/18	Mon 01/10/18
201		**B1 Partitions and Doors**	**303.7days**	**Fri 02/02/18**	**Thu 04/04/19**
202		**B11 Partitions**	**207.4days**	**Fri 02/02/18**	**Tue 20/11/18**
203		**GWB partitions to Level 01**	**48.6days**	**Fri 02/02/18**	**Wed 11/04/18**
204		Metal studs	15.3days	Fri 02/02/18	Fri 23/02/18
205		GWB	14.6days	Thu 22/03/18	Wed 11/04/18
206		**GWB partitions to Level 02**	**48.6days**	**Fri 09/02/18**	**Thu 19/04/18**
207		Metal studs	15.3days	Fri 09/02/18	Mon 05/03/18
208		GWB	14.6days	Thu 29/03/18	Thu 19/04/18
209		**GWB partitions to Level 03**	**48.6days**	**Mon 05/03/18**	**Thu 10/05/18**
210		Metal studs	15.3days	Mon 05/03/18	Mon 26/03/18
211		GWB	14.6days	Fri 20/04/18	Thu 10/05/18
212		**GWB partitions to Level 04**	**48.6days**	**Mon 26/03/18**	**Fri 01/06/18**
213		Metal studs	15.3days	Mon 26/03/18	Mon 16/04/18
214		GWB	14.6days	Fri 11/05/18	Fri 01/06/18
215		**GWB partitions to Level 05**	**48.6days**	**Mon 16/04/18**	**Fri 22/06/18**
216		Metal studs	15.3days	Mon 16/04/18	Tue 08/05/18
217		GWB	14.6days	Fri 01/06/18	Fri 22/06/18
218		**GWB partitions to Level 06**	**48.6days**	**Tue 08/05/18**	**Fri 13/07/18**
219		Metal studs	15.3days	Tue 08/05/18	Tue 29/05/18
220		GWB	14.6days	Mon 25/06/18	Fri 13/07/18
221		**GWB partitions to Level 07**	**48.6days**	**Tue 29/05/18**	**Mon 06/08/18**
222		Metal studs	15.3days	Tue 29/05/18	Tue 19/06/18
223		GWB	14.6days	Mon 16/07/18	Mon 06/08/18
224		**GWB partitions to Level 08**	**48.6days**	**Tue 19/06/18**	**Mon 27/08/18**
225		Metal studs	15.3days	Tue 19/06/18	Wed 11/07/18
226		GWB	14.6days	Mon 06/08/18	Mon 27/08/18
227		**GWB partitions to Level 09**	**48.6days**	**Wed 11/07/18**	**Mon 17/09/18**
228		Metal studs	15.3days	Wed 11/07/18	Wed 01/08/18
229		GWB	14.6days	Tue 28/08/18	Mon 17/09/18
230		**GWB partitions to Level 10**	**48.6days**	**Wed 01/08/18**	**Tue 09/10/18**
231		Metal studs	15.3days	Wed 01/08/18	Wed 22/08/18
232		GWB	14.6days	Tue 18/09/18	Tue 09/10/18
233		**GWB partitions to Level 11**	**48.6days**	**Wed 22/08/18**	**Tue 30/10/18**
234		Metal studs	15.3days	Wed 22/08/18	Thu 13/09/18
235		GWB	14.6days	Tue 09/10/18	Tue 30/10/18
236		**GWB partitions to Level 12**	**48.6days**	**Thu 13/09/18**	**Tue 20/11/18**
237		Metal studs	15.3days	Thu 13/09/18	Thu 04/10/18
238		GWB	14.6days	Wed 31/10/18	Tue 20/11/18
239		**B12 Doors**	**171.4days**	**Tue 07/08/18**	**Thu 04/04/19**
240		Doors to Level 01	12.6days	Tue 07/08/18	Fri 24/08/18
241		Doors to Level 02	12.6days	Wed 15/08/18	Fri 31/08/18
242		Doors to Level 03	12.6days	Wed 05/09/18	Mon 24/09/18
243		Doors to Level 04	12.6days	Wed 26/09/18	Mon 15/10/18
244		Doors to Level 05	12.6days	Thu 18/10/18	Mon 05/11/18
245		Doors to Level 06	12.6days	Thu 08/11/18	Tue 27/11/18
246		Doors to Level 07	12.6days	Thu 29/11/18	Tue 18/12/18
247		Doors to Level 08	12.6days	Fri 21/12/18	Tue 08/01/19
248		Doors to Level 09	12.6days	Fri 11/01/19	Wed 30/01/19
249		Doors to Level 10	12.6days	Fri 01/02/19	Wed 20/02/19
250		Doors to Level 11	12.6days	Mon 25/02/19	Wed 13/03/19
251		Doors to Level 12	12.6days	Mon 18/03/19	Thu 04/04/19
252		**B2 Finishes**	**226.6days**	**Thu 03/05/18**	**Mon 18/03/19**
253		**B21 Floor Finishes**	**226.6days**	**Thu 03/05/18**	**Mon 18/03/19**
254		50mm concrete topping to Level 01	4.4days	Thu 03/05/18	Thu 10/05/18
255		Floor finishes to Level 01	13.7days	Thu 19/07/18	Tue 07/08/18
256		50mm concrete topping to Level 02	4.4days	Fri 11/05/18	Thu 17/05/18
257		Floor finishes to Level 02	13.7days	Thu 26/07/18	Wed 15/08/18
258		50mm concrete topping to Level 03	4.4days	Fri 01/06/18	Fri 08/06/18
259		Floor finishes to Level 03	13.7days	Thu 16/08/18	Wed 05/09/18
260		50mm concrete topping to Level 04	4.4days	Mon 25/06/18	Fri 29/06/18



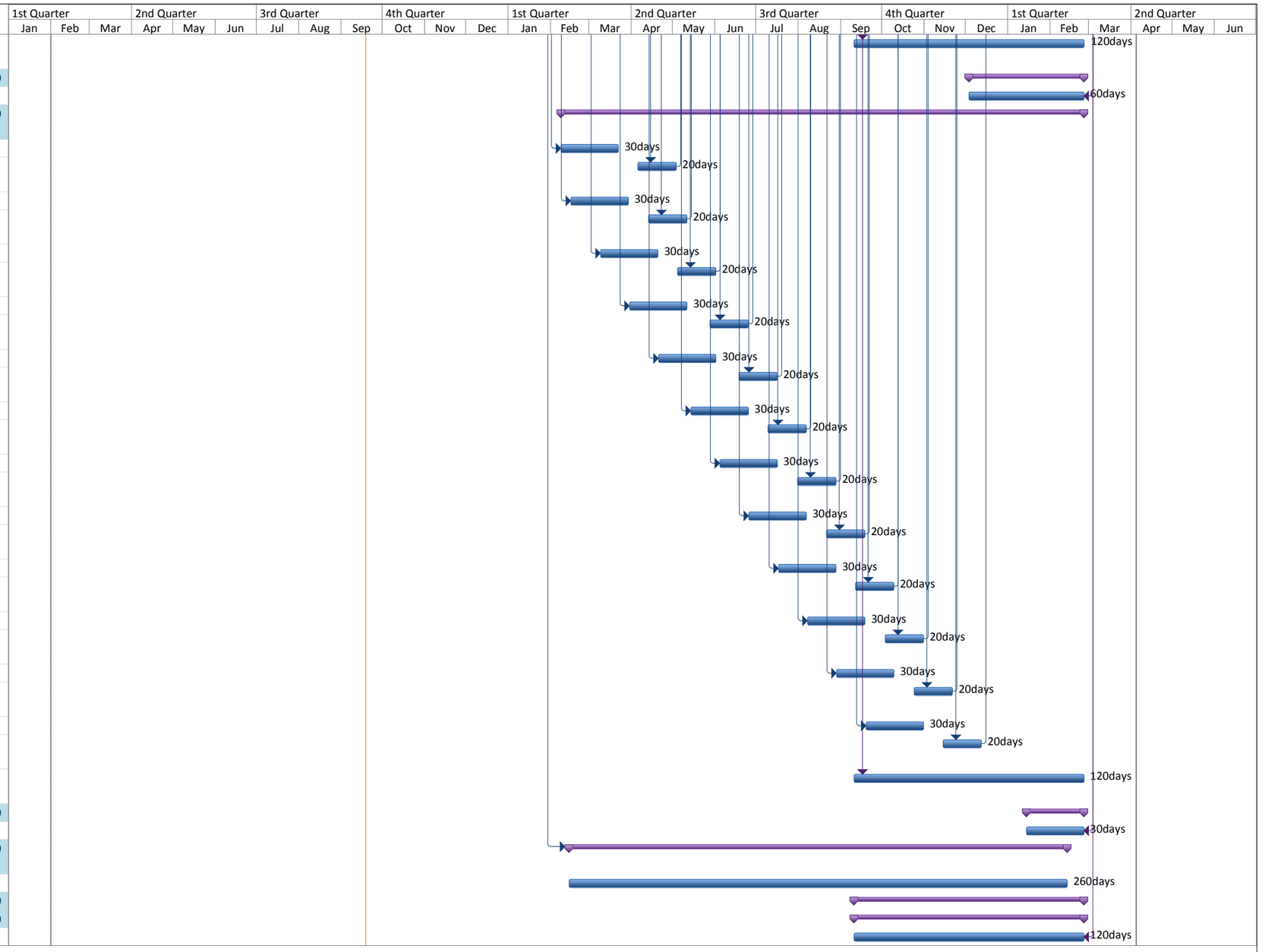
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
261		Floor finishes to Level 04	13.7days	Fri 07/09/18	Wed 26/09/18
262		50mm concrete topping to Level 05	4.4days	Mon 16/07/18	Fri 20/07/18
263		Floor finishes to Level 05	13.7days	Fri 28/09/18	Thu 18/10/18
264		50mm concrete topping to Level 06	4.4days	Mon 06/08/18	Mon 13/08/18
265		Floor finishes to Level 06	13.7days	Fri 19/10/18	Thu 08/11/18
266		50mm concrete topping to Level 07	4.4days	Tue 28/08/18	Mon 03/09/18
267		Floor finishes to Level 07	13.7days	Mon 12/11/18	Thu 29/11/18
268		50mm concrete topping to Level 08	4.4days	Tue 18/09/18	Mon 24/09/18
269		Floor finishes to Level 08	13.7days	Mon 03/12/18	Fri 21/12/18
270		50mm concrete topping to Level 09	4.4days	Tue 09/10/18	Tue 16/10/18
271		Floor finishes to Level 09	13.7days	Mon 24/12/18	Fri 11/01/19
272		50mm concrete topping to Level 10	4.4days	Wed 31/10/18	Tue 06/11/18
273		Floor finishes to Level 10	13.7days	Tue 15/01/19	Fri 01/02/19
274		50mm concrete topping to Level 11	4.4days	Wed 21/11/18	Tue 27/11/18
275		Floor finishes to Level 11	13.7days	Tue 05/02/19	Mon 25/02/19
276		50mm concrete topping to Level 12	4.4days	Wed 12/12/18	Wed 19/12/18
277		Floor finishes to Level 12	13.7days	Tue 26/02/19	Mon 18/03/19
278		**B22 Ceiling Finishes**	**177.8days**	**Thu 24/05/18**	**Tue 29/01/19**
279		Fireproofing of steel frame members to Level 01	15days	Thu 24/05/18	Thu 14/06/18
280		Ceiling finishes to Level 01	3.9days	Thu 14/06/18	Wed 20/06/18
281		Fireproofing of steel frame members to Level 02	15days	Thu 31/05/18	Thu 21/06/18
282		Ceiling finishes to Level 02	3.9days	Thu 21/06/18	Wed 27/06/18
283		Fireproofing of steel frame members to Level 03	15days	Fri 22/06/18	Fri 13/07/18
284		Ceiling finishes to Level 03	3.9days	Fri 13/07/18	Thu 19/07/18
285		Fireproofing of steel frame members to Level 04	15days	Fri 13/07/18	Fri 03/08/18
286		Ceiling finishes to Level 04	3.9days	Fri 03/08/18	Thu 09/08/18
287		Fireproofing of steel frame members to Level 05	15days	Fri 03/08/18	Fri 24/08/18
288		Ceiling finishes to Level 05	3.9days	Fri 24/08/18	Thu 30/08/18
289		Fireproofing of steel frame members to Level 06	15days	Mon 27/08/18	Mon 17/09/18
290		Ceiling finishes to Level 06	3.9days	Mon 17/09/18	Fri 21/09/18
291		Fireproofing of steel frame members to Level 07	15days	Mon 17/09/18	Mon 08/10/18
292		Ceiling finishes to Level 07	3.9days	Mon 08/10/18	Fri 12/10/18
293		Fireproofing of steel frame members to Level 08	15days	Mon 08/10/18	Mon 29/10/18
294		Ceiling finishes to Level 08	3.9days	Mon 29/10/18	Fri 02/11/18
295		Fireproofing of steel frame members to Level 09	15days	Tue 30/10/18	Tue 20/11/18
296		Ceiling finishes to Level 09	3.9days	Tue 20/11/18	Mon 26/11/18
297		Fireproofing of steel frame members to Level 10	15days	Tue 20/11/18	Tue 11/12/18
298		Ceiling finishes to Level 10	3.9days	Tue 11/12/18	Mon 17/12/18
299		Fireproofing of steel frame membersr to Level 11	15days	Tue 11/12/18	Tue 01/01/19
300		Ceiling finishes to Level 11	3.9days	Tue 01/01/19	Mon 07/01/19
301		Fireproofing of steel frame members to Level 12	15days	Wed 02/01/19	Wed 23/01/19
302		Ceiling finishes to Level 12	3.9days	Wed 23/01/19	Tue 29/01/19
303		**B23 Wall Finishes**	**182.6days**	**Tue 19/06/18**	**Thu 28/02/19**
304		Fireproofing and thermal bridges to Level 01	15days	Tue 19/06/18	Tue 10/07/18
305		Wall finishes to Level 01	8.8days	Tue 10/07/18	Mon 23/07/18
306		Fireproofing and thermal bridges to Level 02	15days	Tue 26/06/18	Tue 17/07/18



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
307		Wall finishes to Level 02	8.8days	Tue 17/07/18	Mon 30/07/18
308		Fireproofing and thermal bridges to Level 03	15days	Wed 18/07/18	Wed 08/08/18
309		Wall finishes to Level 03	8.8days	Wed 08/08/18	Mon 20/08/18
310		Fireproofing and thermal bridges to Level 04	15days	Wed 08/08/18	Wed 29/08/18
311		Wall finishes to Level 04	8.8days	Wed 29/08/18	Tue 11/09/18
312		Fireproofing and thermal bridges to Level 05	15days	Wed 29/08/18	Wed 19/09/18
313		Wall finishes to Level 05	8.8days	Wed 19/09/18	Tue 02/10/18
314		Fireproofing and thermal bridges to Level 06	15days	Thu 20/09/18	Thu 11/10/18
315		Wall finishes to Level 06	8.8days	Thu 11/10/18	Tue 23/10/18
316		Fireproofing and thermal bridges to Level 07	15days	Thu 11/10/18	Thu 01/11/18
317		Wall finishes to Level 07	8.8days	Thu 01/11/18	Wed 14/11/18
318		Fireproofing and thermal bridges to Level 08	15days	Thu 01/11/18	Thu 22/11/18
319		Wall finishes to Level 08	8.8days	Thu 22/11/18	Wed 05/12/18
320		Fireproofing and thermal bridges to Level 09	15days	Fri 23/11/18	Fri 14/12/18
321		Wall finishes to Level 09	8.8days	Fri 14/12/18	Wed 26/12/18
322		Fireproofing and thermal bridges to Level 10	15days	Fri 14/12/18	Fri 04/01/19
323		Wall finishes to Level 10	8.8days	Fri 04/01/19	Thu 17/01/19
324		Fireproofing and thermal bridges to Level 11	15days	Fri 04/01/19	Fri 25/01/19
325		Wall finishes to Level 11	8.8days	Fri 25/01/19	Thu 07/02/19
326		Fireproofing and thermal bridges to Level 12	15days	Mon 28/01/19	Mon 18/02/19
327		Wall finishes to Level 12	8.8days	Mon 18/02/19	Thu 28/02/19
328		**B3 Fittings and Equipment**	**120days**	**Mon 10/09/18**	**Mon 25/02/19**
329		**B31 Fittings and Fixtures**	**60days**	**Mon 10/09/18**	**Mon 03/12/18**
330		Fittings and Fixtures	60days	Mon 10/09/18	Mon 03/12/18
331		**B32 Equipment**	**60days**	**Mon 10/09/18**	**Mon 03/12/18**
332		Equipment	60days	Mon 10/09/18	Mon 03/12/18
333		**B33 Elevators**	**120days**	**Mon 10/09/18**	**Mon 25/02/19**
334		Elevators to section 01	80days	Mon 10/09/18	Mon 31/12/18
335		Elevators to section 02	80days	Mon 08/10/18	Mon 28/01/19
336		Elevators to section 03	80days	Mon 05/11/18	Mon 25/02/19
337		**C. Services**	**272.3days**	**Thu 08/02/18**	**Mon 25/02/19**
338		**C1. Mechanical Services**	**272.3days**	**Thu 08/02/18**	**Mon 25/02/19**
339		**C11. Plumbing and Drainage**	**272.3days**	**Thu 08/02/18**	**Mon 25/02/19**
340		Mechanical elements to Level 01	30days	Thu 08/02/18	Thu 22/03/18
341		Mechanical elements to Level 02	30days	Thu 15/02/18	Thu 29/03/18
342		Mechanical elements to Level 03	30days	Fri 09/03/18	Fri 20/04/18
343		Mechanical elements to Level 04	30days	Fri 30/03/18	Fri 11/05/18
344		Mechanical elements to Level 05	30days	Fri 20/04/18	Fri 01/06/18
345		Mechanical elements to Level 06	30days	Mon 14/05/18	Mon 25/06/18
346		Mechanical elements to Level 07	30days	Mon 04/06/18	Mon 16/07/18
347		Mechanical elements to Level 08	30days	Mon 25/06/18	Mon 06/08/18
348		Mechanical elements to Level 09	30days	Tue 17/07/18	Tue 28/08/18
349		Mechanical elements to Level 10	30days	Tue 07/08/18	Tue 18/09/18
350		Mechanical elements to Level 11	30days	Tue 28/08/18	Tue 09/10/18
351		Mechanical elements to Level 12	30days	Wed 19/09/18	Wed 31/10/18

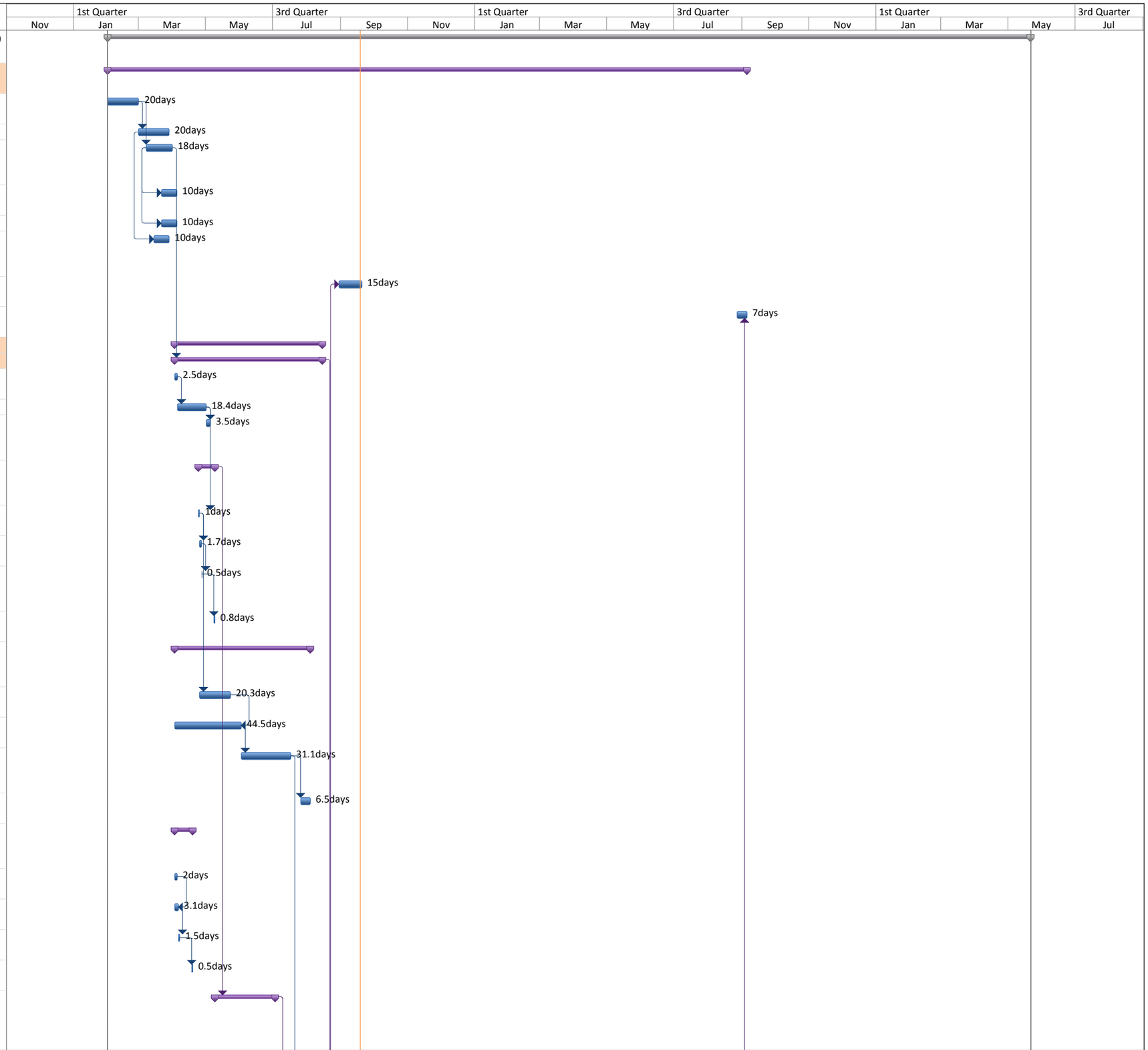


ID	Task Mode	Task Name	Rounded Duration	Start	Finish
352		Mechanical elements other, include mechanical rooms	120days	Mon 10/09/18	Mon 25/02/19
353		**C12. Fire Protection**	**60days**	**Mon 03/12/18**	**Mon 25/02/19**
354		Fire protection services	60days	Mon 03/12/18	Mon 25/02/19
355		**C13. HVAC. Radiant floor heating.**	**272.3days**	**Thu 08/02/18**	**Mon 25/02/19**
356		HVAC to Level 01	30days	Thu 08/02/18	Thu 22/03/18
357		Radiant floor heating to Level 01	20days	Thu 05/04/18	Thu 03/05/18
358		HVAC to Level 02	30days	Thu 15/02/18	Thu 29/03/18
359		Radiant floor heating to Level 02	20days	Fri 13/04/18	Fri 11/05/18
360		HVAC to Level 03	30days	Fri 09/03/18	Fri 20/04/18
361		Radiant floor heating to Level 03	20days	Fri 04/05/18	Fri 01/06/18
362		HVAC to Level 04	30days	Fri 30/03/18	Fri 11/05/18
363		Radiant floor heating to Level 04	20days	Mon 28/05/18	Mon 25/06/18
364		HVAC to Level 05	30days	Fri 20/04/18	Fri 01/06/18
365		Radiant floor heating to Level 05	20days	Mon 18/06/18	Mon 16/07/18
366		HVAC to Level 06	30days	Mon 14/05/18	Mon 25/06/18
367		Radiant floor heating to Level 06	20days	Mon 09/07/18	Mon 06/08/18
368		HVAC to Level 07	30days	Mon 04/06/18	Mon 16/07/18
369		Radiant floor heating to Level 07	20days	Tue 31/07/18	Tue 28/08/18
370		HVAC to Level 08	30days	Mon 25/06/18	Mon 06/08/18
371		Radiant floor heating to Level 08	20days	Tue 21/08/18	Tue 18/09/18
372		HVAC to Level 09	30days	Tue 17/07/18	Tue 28/08/18
373		Radiant floor heating to Level 09	20days	Tue 11/09/18	Tue 09/10/18
374		HVAC to Level 10	30days	Tue 07/08/18	Tue 18/09/18
375		Radiant floor heating to Level 10	20days	Wed 03/10/18	Wed 31/10/18
376		HVAC to Level 11	30days	Tue 28/08/18	Tue 09/10/18
377		Radiant floor heating to Level 11	20days	Wed 24/10/18	Wed 21/11/18
378		HVAC to Level 12	30days	Wed 19/09/18	Wed 31/10/18
379		Radiant floor heating to Level 12	20days	Wed 14/11/18	Wed 12/12/18
380		Other HVAC to the rest of builduing	120days	Mon 10/09/18	Mon 25/02/19
381		**C14. Controls**	**30days**	**Mon 14/01/19**	**Mon 25/02/19**
382		DDC Controls	30days	Mon 14/01/19	Mon 25/02/19
383		**C2. Elecrtical Services**	**260days**	**Wed 14/02/18**	**Wed 13/02/19**
384		Electrical Services	260days	Wed 14/02/18	Wed 13/02/19
385		**D1. Site Work**	**120days**	**Mon 10/09/18**	**Mon 25/02/19**
386		**D11. Site Development**	**120days**	**Mon 10/09/18**	**Mon 25/02/19**
387		Site work	120days	Mon 10/09/18	Mon 25/02/19

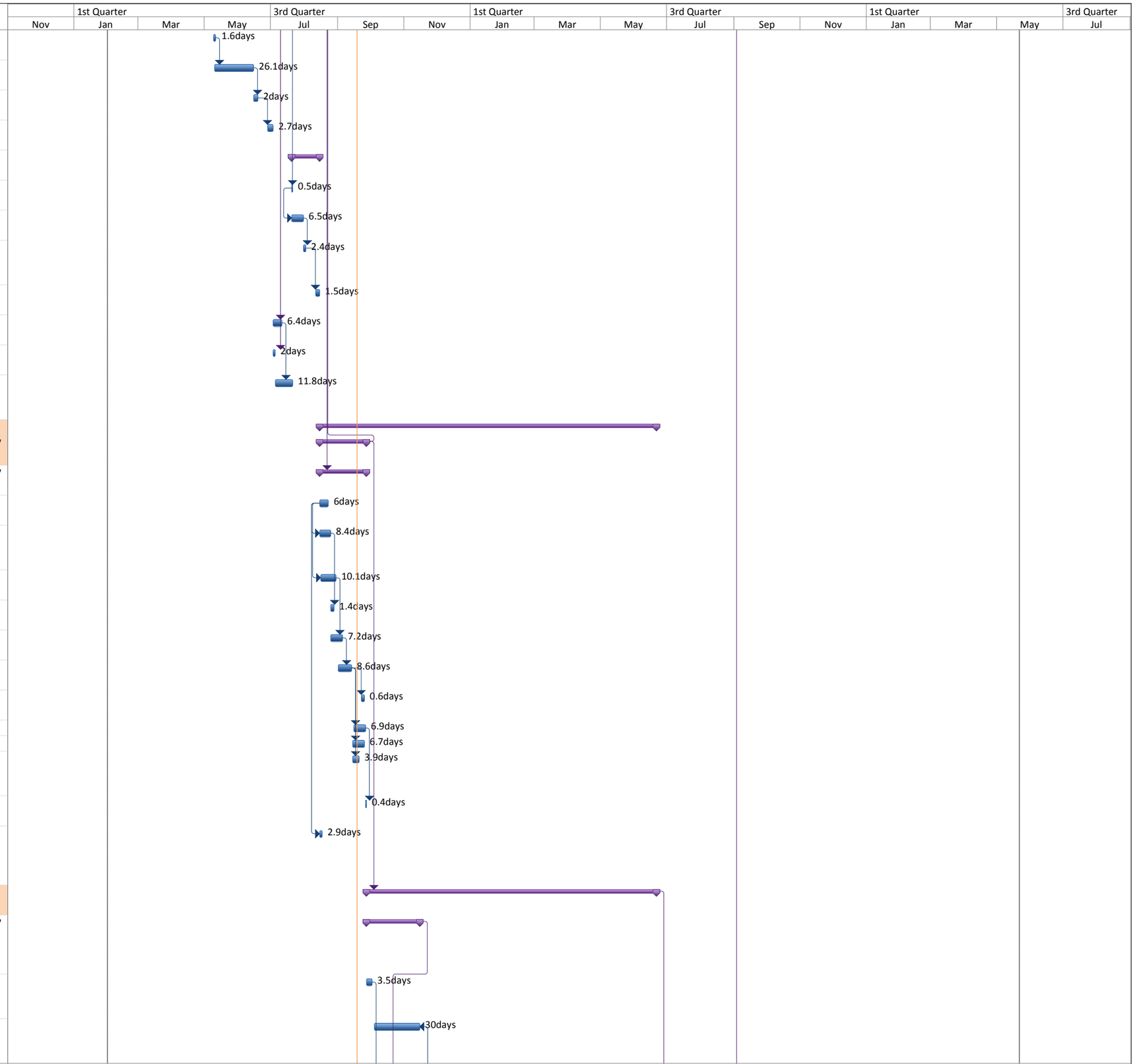


Appendix G
Detailed Schedule
Office Building

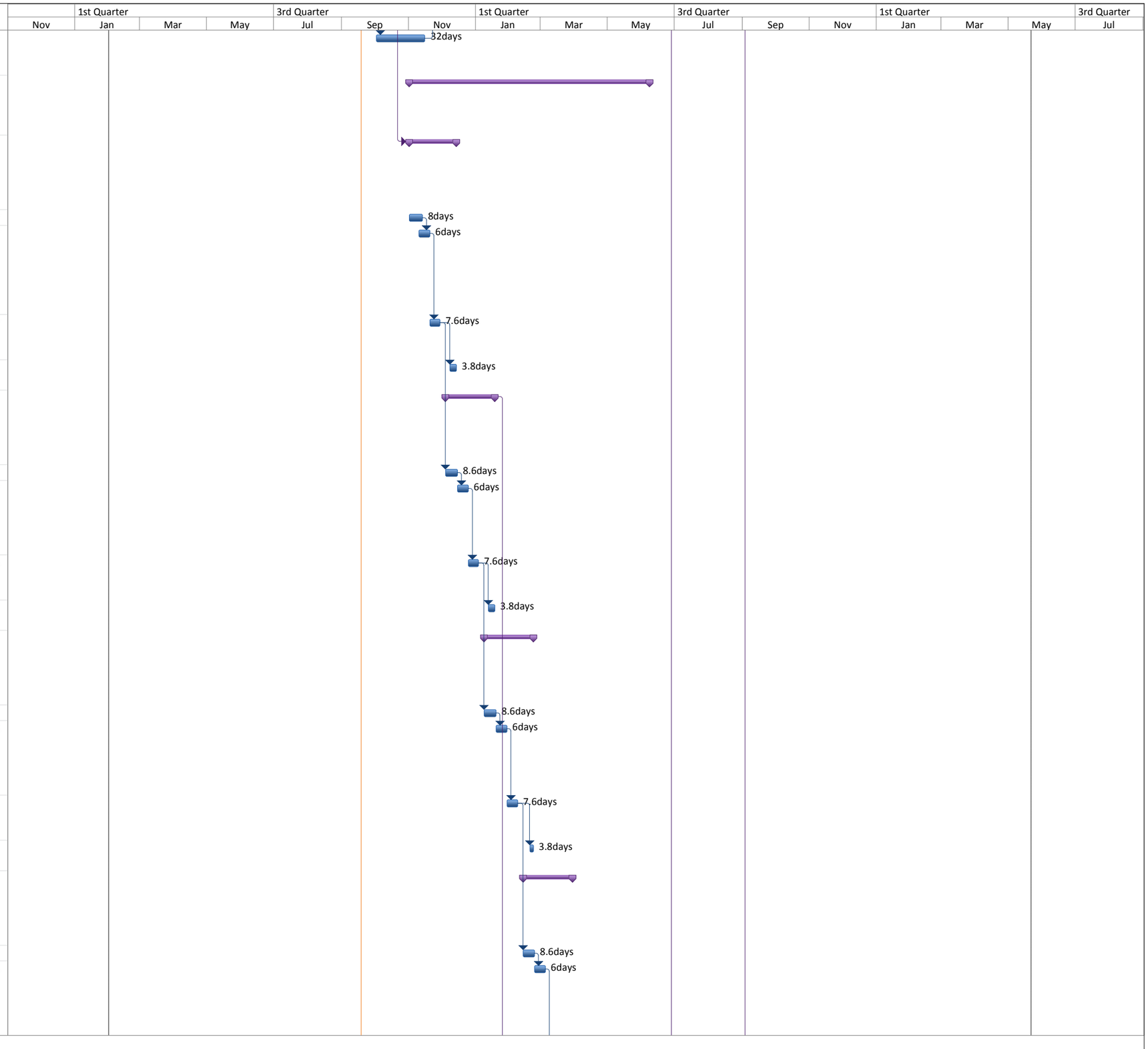
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Mass Timber Building - Commercial**	**599.7days**	**Wed 01/02/17**	**Tue 21/05/19**
1		**General Conditions and Management**	**415.7days**	**Wed 01/02/17**	**Wed 05/09/18**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 2 cranes	15days	Wed 30/08/17	Wed 20/09/17
9		Tower cranes dismantle - 2 cranes	7days	Mon 27/08/18	Wed 05/09/18
10		**A1 Substructure**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
11		**A11 Foundations**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
12		Clearing and grubbing	2.5days	Mon 03/04/17	Wed 05/04/17
13		Excavation	18.4days	Wed 05/04/17	Mon 01/05/17
14		Perimeter drain c/w filter socket and granular cover	3.5days	Mon 01/05/17	Fri 05/05/17
15		**Reinforced concrete strip footing**	**11days**	**Mon 24/04/17**	**Tue 09/05/17**
16		Concrete reinforcement	1days	Mon 24/04/17	Tue 25/04/17
17		Formwork to sides	1.7days	Tue 25/04/17	Thu 27/04/17
18		Concrete placing by pumps	0.5days	Thu 27/04/17	Thu 27/04/17
19		Stripping formwork	0.8days	Mon 08/05/17	Tue 09/05/17
20		**Reinforced concrete pad footing to columns**	**89.1days**	**Mon 03/04/17**	**Fri 04/08/17**
21		Concrete reinforcement	20.3days	Tue 25/04/17	Tue 23/05/17
22		Formwork to sides	44.5days	Mon 03/04/17	Fri 02/06/17
23		Concrete placing by pumps	31.1days	Fri 02/06/17	Mon 17/07/17
24		Stripping formwork	6.5days	Wed 26/07/17	Fri 04/08/17
25		**Raft slab below elevator & stair cores**	**12.1days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.5days	Thu 06/04/17	Fri 07/04/17
29		Stripping formwork	0.5days	Tue 18/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**38.4days**	**Tue 09/05/17**	**Mon 03/07/17**



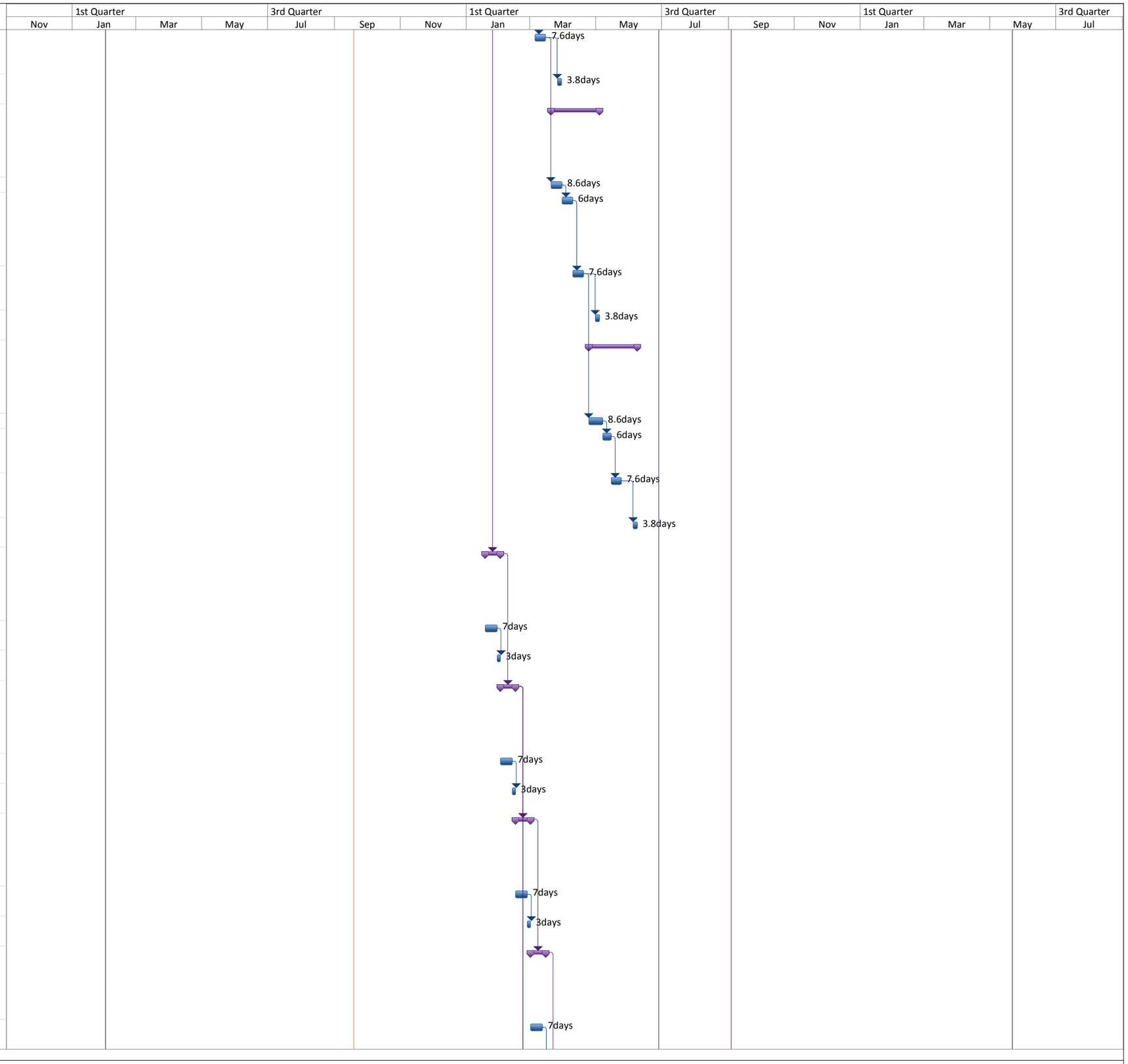
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
31		Concrete reinforcement	1.6days	Tue 09/05/17	Thu 11/05/17
32		Formwork to sides	26.1days	Wed 10/05/17	Thu 15/06/17
33		Concrete placing by pump	2days	Thu 15/06/17	Mon 19/06/17
34		Stripping formwork	2.7days	Wed 28/06/17	Mon 03/07/17
35		**Piers. Reinforced concrete**	**17.4days**	**Thu 20/07/17**	**Tue 15/08/17**
36		Concrete reinforcement	0.5days	Thu 20/07/17	Fri 21/07/17
37		Formwork to sides	6.5days	Thu 20/07/17	Mon 31/07/17
38		Concrete placing by pumps	2.4days	Mon 31/07/17	Wed 02/08/17
39		Stripping formwork	1.5days	Fri 11/08/17	Tue 15/08/17
40		Extraover for dampproofing	6.4days	Mon 03/07/17	Tue 11/07/17
41		Allowance for expansion joint	2days	Mon 03/07/17	Wed 05/07/17
42		Backfill excavated area c/w compaction	11.8days	Wed 05/07/17	Fri 21/07/17
43		**A2 Structure**	**222.6days**	**Tue 15/08/17**	**Thu 21/06/18**
44		**A21 Lowest Floor Construction**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
45		**250 mm reinforced concrete slab**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
46		6 mm vapour barier	6days	Tue 15/08/17	Wed 23/08/17
47		300 mm granular fill compacted slab	8.4days	Tue 15/08/17	Fri 25/08/17
48		75 mm rigid insulation	10.1days	Wed 16/08/17	Wed 30/08/17
49		Formwork to openings	1.4days	Fri 25/08/17	Mon 28/08/17
50		Concrete reinforcement	7.2days	Fri 25/08/17	Tue 05/09/17
51		Concrete placing by pump	8.6days	Fri 01/09/17	Wed 13/09/17
52		Stripping formwork	0.6days	Fri 22/09/17	Mon 25/09/17
53		Finishing	6.9days	Fri 15/09/17	Tue 26/09/17
54		Water curing	6.7days	Thu 14/09/17	Mon 25/09/17
55		Sheet membrane curing	3.9days	Thu 14/09/17	Wed 20/09/17
56		Sawcut control joints	0.4days	Tue 26/09/17	Wed 27/09/17
57		Civil works. General civil infrastructure allowance	2.9days	Tue 15/08/17	Thu 17/08/17
58		**A22 Upper Floor Construction**	**191.5days**	**Wed 27/09/17**	**Thu 21/06/18**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**35.5days**	**Wed 27/09/17**	**Wed 15/11/17**
60		Concrete columns to Level 01	3.5days	Wed 27/09/17	Mon 02/10/17
61		Concrete stair and elevators cores to Level 01	30days	Wed 04/10/17	Wed 15/11/17



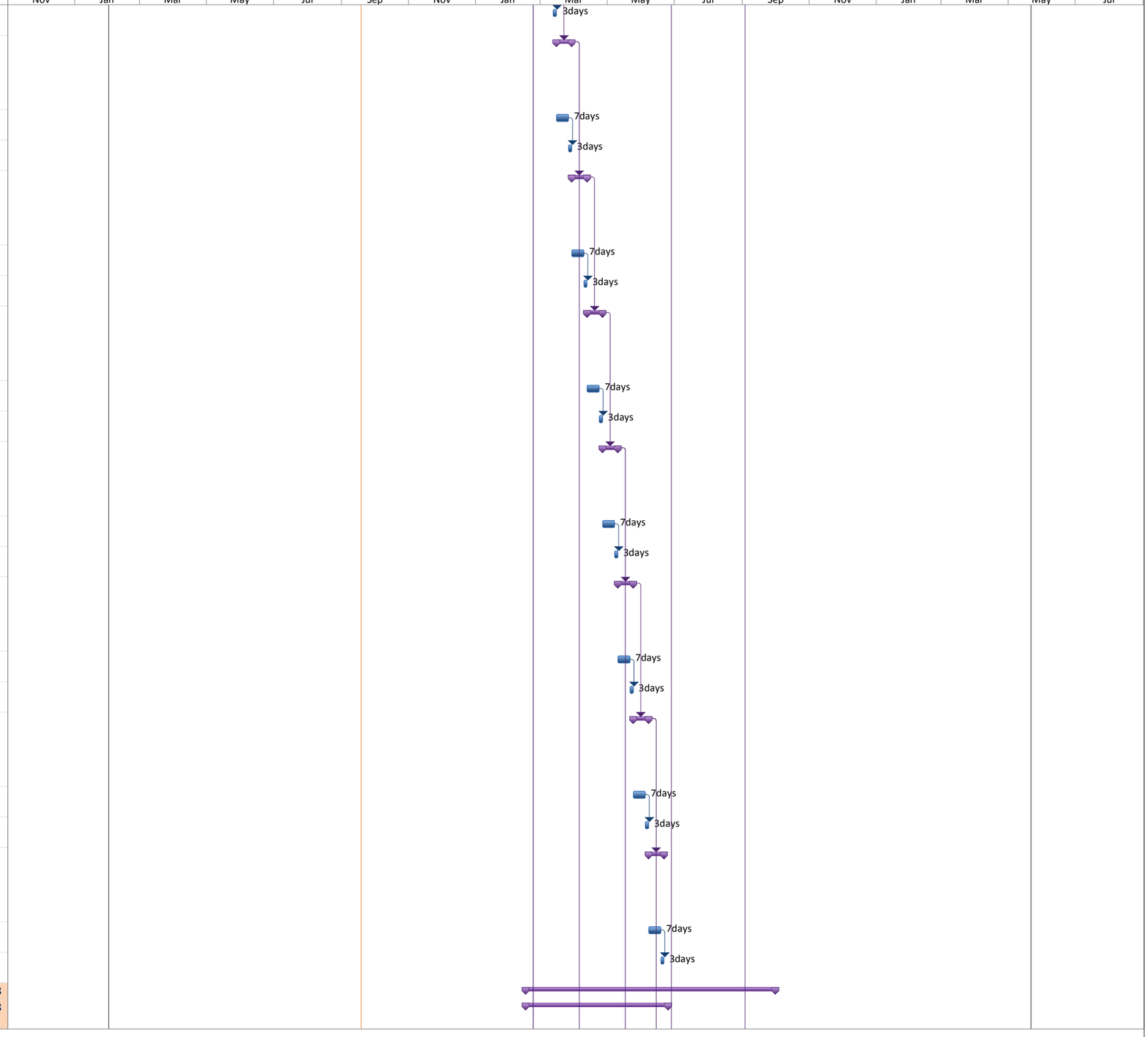
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
62		Concrete suspended slab to Level 02	32days	Mon 02/10/17	Wed 15/11/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**156.8days**	**Wed 01/11/17**	**Fri 08/06/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 12 cores**	**30.8days**	**Wed 01/11/17**	**Thu 14/12/17**
65		Rebar	8days	Wed 01/11/17	Mon 13/11/17
66		Installation of customed engineered formwork. Height for 2 floors	6days	Fri 10/11/17	Mon 20/11/17
67		Concrete placing by pumps	7.6days	Mon 20/11/17	Wed 29/11/17
68		Stripping formwork	3.8days	Fri 08/12/17	Thu 14/12/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 12 cores**	**32.9days**	**Mon 04/12/17**	**Thu 18/01/18**
70		Rebar	8.6days	Mon 04/12/17	Fri 15/12/17
71		Installation of engineered formwork. Height for 2 floors	6days	Fri 15/12/17	Mon 25/12/17
72		Concrete placing by pumps	7.6days	Mon 25/12/17	Wed 03/01/18
73		Stripping formwork	3.8days	Fri 12/01/18	Thu 18/01/18
74		**Concrete stair and elevator cores to Level 06, Level 07. 12 cores**	**32.9days**	**Mon 08/01/18**	**Thu 22/02/18**
75		Rebar	8.6days	Mon 08/01/18	Fri 19/01/18
76		Installation of engineered formwork. Height for 2 floors	6days	Fri 19/01/18	Mon 29/01/18
77		Concrete placing by pumps	7.6days	Mon 29/01/18	Thu 08/02/18
78		Stripping formwork	3.8days	Mon 19/02/18	Thu 22/02/18
79		**Concrete stair and elevator cores to Level 08, Level 09. 12 cores**	**32.9days**	**Tue 13/02/18**	**Fri 30/03/18**
80		Rebar	8.6days	Tue 13/02/18	Fri 23/02/18
81		Installation of engineered formwork. Height for 2 floors	6days	Fri 23/02/18	Mon 05/03/18



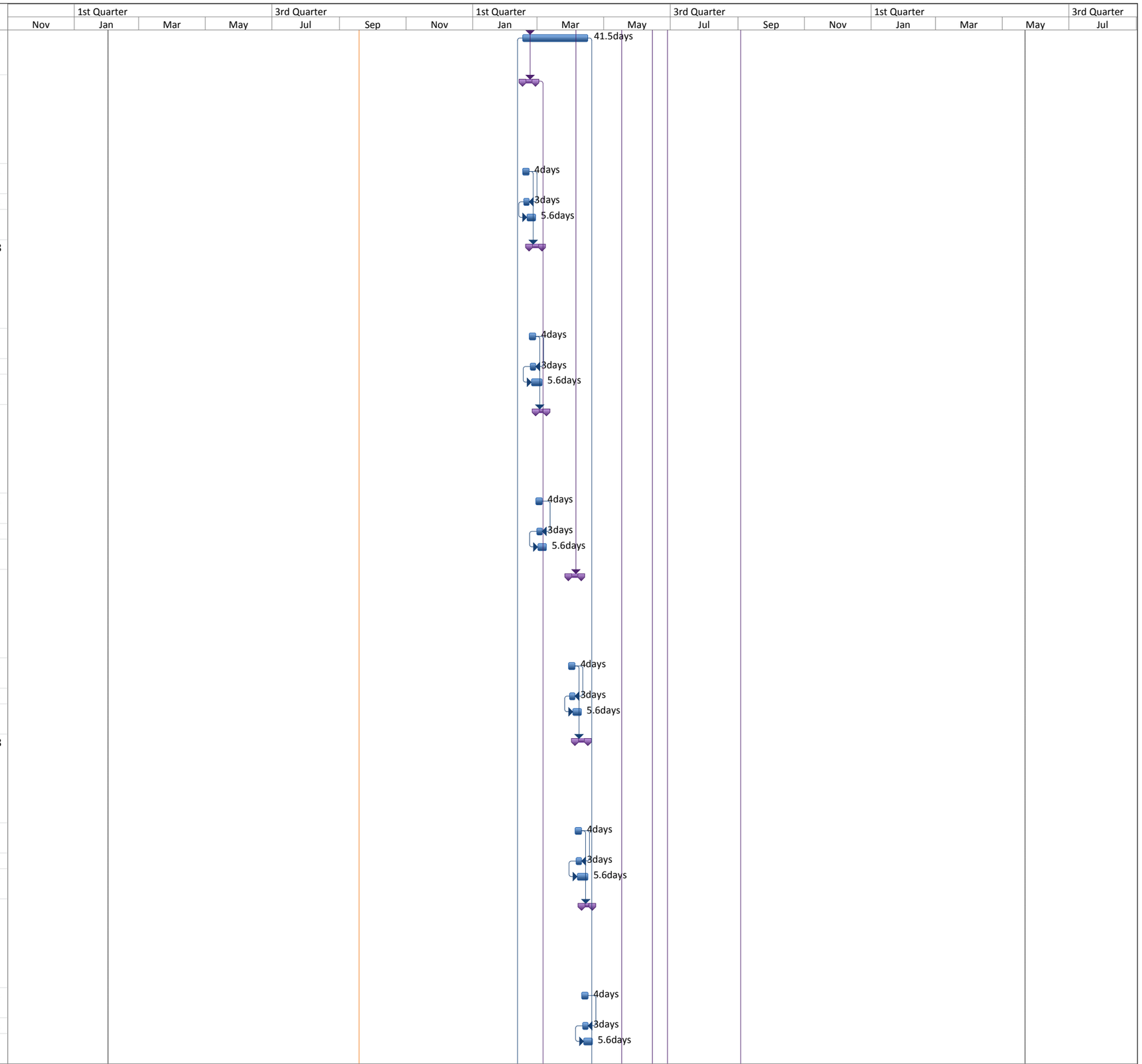
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
82		Concrete placing by pumps	7.6days	Mon 05/03/18	Thu 15/03/18
83		Stripping formwork	3.8days	Mon 26/03/18	Fri 30/03/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 12 cores**	**32.9days**	**Tue 20/03/18**	**Fri 04/05/18**
85		Rebar	8.6days	Tue 20/03/18	Fri 30/03/18
86		Installation of engineered formwork. Height for 2 floors	6days	Fri 30/03/18	Mon 09/04/18
87		Concrete placing by pumps	7.6days	Mon 09/04/18	Thu 19/04/18
88		Stripping formwork	3.8days	Mon 30/04/18	Fri 04/05/18
89		**Concrete stair and elevator cores to Level 12, Roof. 12 cores**	**32.9days**	**Tue 24/04/18**	**Fri 08/06/18**
90		Rebar	8.6days	Tue 24/04/18	Mon 07/05/18
91		Installation of engineered formwork	6days	Mon 07/05/18	Tue 15/05/18
92		Concrete placing by pumps	7.6days	Tue 15/05/18	Thu 24/05/18
93		Stripping formwork	3.8days	Mon 04/06/18	Fri 08/06/18
94		**Mass Timber Frame c/w columns to Level 02, flat-plate slab to Level 03**	**10days**	**Thu 18/01/18**	**Thu 01/02/18**
95		Prefabricated GLT columns	7days	Thu 18/01/18	Mon 29/01/18
96		CLT 2-way panels	3days	Mon 29/01/18	Thu 01/02/18
97		**Mass Timber Frame c/w columns to Level 03, flat-plate slab to Level 04**	**10days**	**Thu 01/02/18**	**Thu 15/02/18**
98		Prefabricated GLT columns	7days	Thu 01/02/18	Mon 12/02/18
99		CLT 2-way panels	3days	Mon 12/02/18	Thu 15/02/18
100		**Mass Timber Frame c/w columns to Level 04, flat-plate slab to Level 05**	**10days**	**Thu 15/02/18**	**Thu 01/03/18**
101		Prefabricated GLT columns	7days	Thu 15/02/18	Mon 26/02/18
102		CLT 2-way panels	3days	Mon 26/02/18	Thu 01/03/18
103		**Mass Timber Frame c/w columns to Level 05, flat-plate slab to Level 06**	**10days**	**Thu 01/03/18**	**Thu 15/03/18**
104		Prefabricated GLT columns	7days	Thu 01/03/18	Mon 12/03/18



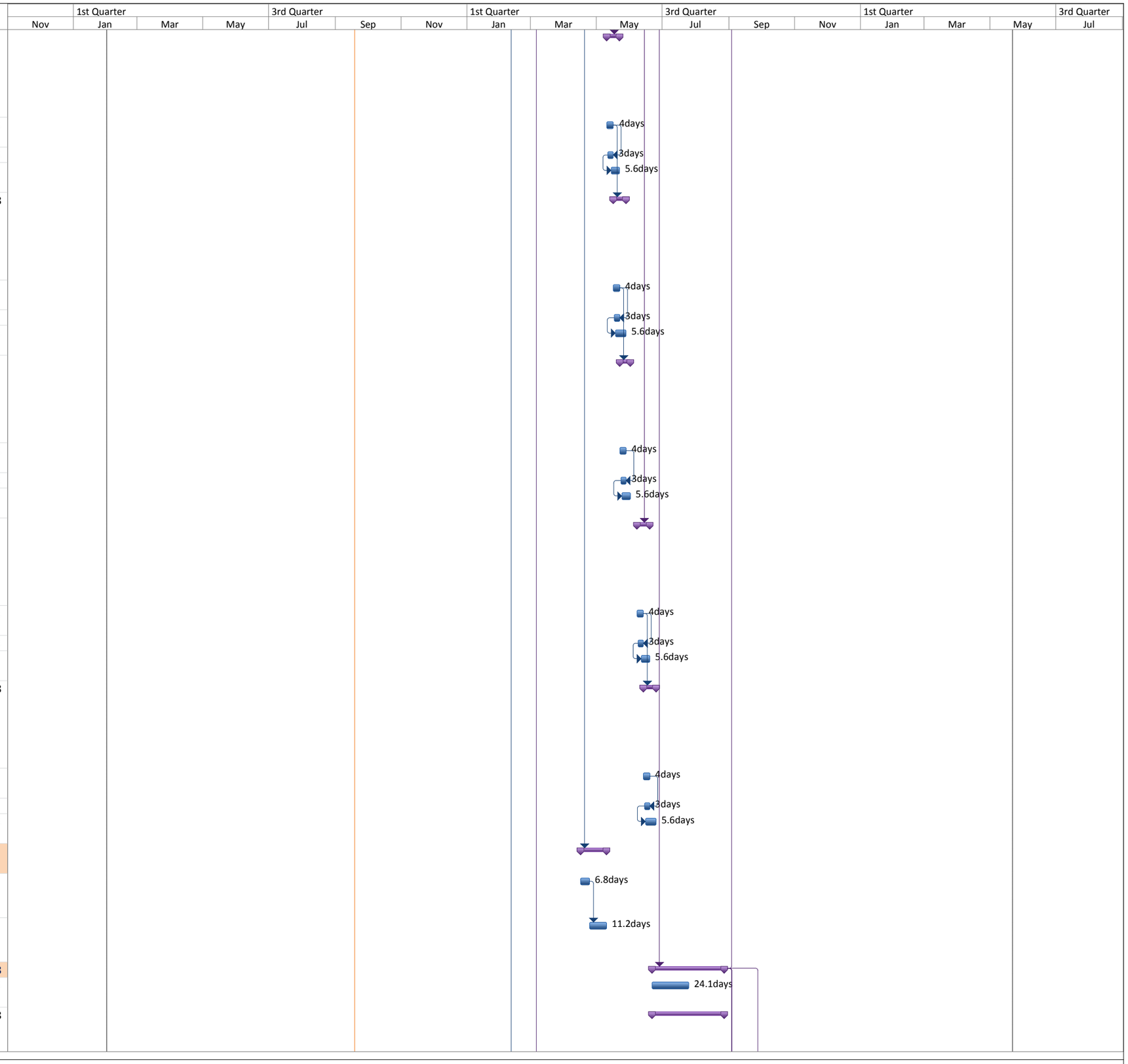
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
105		CLT 2-way panels	3days	Mon 12/03/18	Thu 15/03/18
106		**Mass Timber Frame c/w columns to Level 06, flat-plate slab to Level 07**	**10days**	**Thu 15/03/18**	**Thu 29/03/18**
107		Prefabricated GLT columns	7days	Thu 15/03/18	Mon 26/03/18
108		CLT 2-way panels	3days	Mon 26/03/18	Thu 29/03/18
109		**Mass Timber Frame c/w columns to Level 07, flat-plate slab to Level 08**	**10days**	**Thu 29/03/18**	**Thu 12/04/18**
110		Prefabricated GLT columns	7days	Thu 29/03/18	Mon 09/04/18
111		CLT 2-way panels	3days	Mon 09/04/18	Thu 12/04/18
112		**Mass Timber Frame c/w columns to Level 08, flat-plate slab to Level 09**	**10days**	**Thu 12/04/18**	**Thu 26/04/18**
113		Prefabricated GLT columns	7days	Thu 12/04/18	Mon 23/04/18
114		CLT 2-way panels	3days	Mon 23/04/18	Thu 26/04/18
115		**Mass Timber Frame c/w columns to Level 09, flat-plate slab to Level 10**	**10days**	**Thu 26/04/18**	**Thu 10/05/18**
116		Prefabricated GLT columns	7days	Thu 26/04/18	Mon 07/05/18
117		CLT 2-way panels	3days	Mon 07/05/18	Thu 10/05/18
118		**Mass Timber Frame c/w columns to Level 10, flat-plate slab to Level 11**	**10days**	**Thu 10/05/18**	**Thu 24/05/18**
119		Prefabricated GLT columns	7days	Thu 10/05/18	Mon 21/05/18
120		CLT 2-way panels	3days	Mon 21/05/18	Thu 24/05/18
121		**Mass Timber Frame c/w columns to Level 11, flat-plate slab to Level 12**	**10days**	**Thu 24/05/18**	**Thu 07/06/18**
122		Prefabricated GLT columns	7days	Thu 24/05/18	Mon 04/06/18
123		CLT 2-way panels	3days	Mon 04/06/18	Thu 07/06/18
124		**Mass Timber Frame c/w columns to Level 12, flat-plate slab to Roof**	**10days**	**Thu 07/06/18**	**Thu 21/06/18**
125		Prefabricated GLT columns	7days	Thu 07/06/18	Mon 18/06/18
126		CLT 2-way panels	3days	Mon 18/06/18	Thu 21/06/18
127		**A3 Exterior Enclosure**	**161.3days**	**Thu 15/02/18**	**Mon 01/10/18**
128		**A32 Walls Above Grade**	**91.6days**	**Thu 15/02/18**	**Mon 25/06/18**



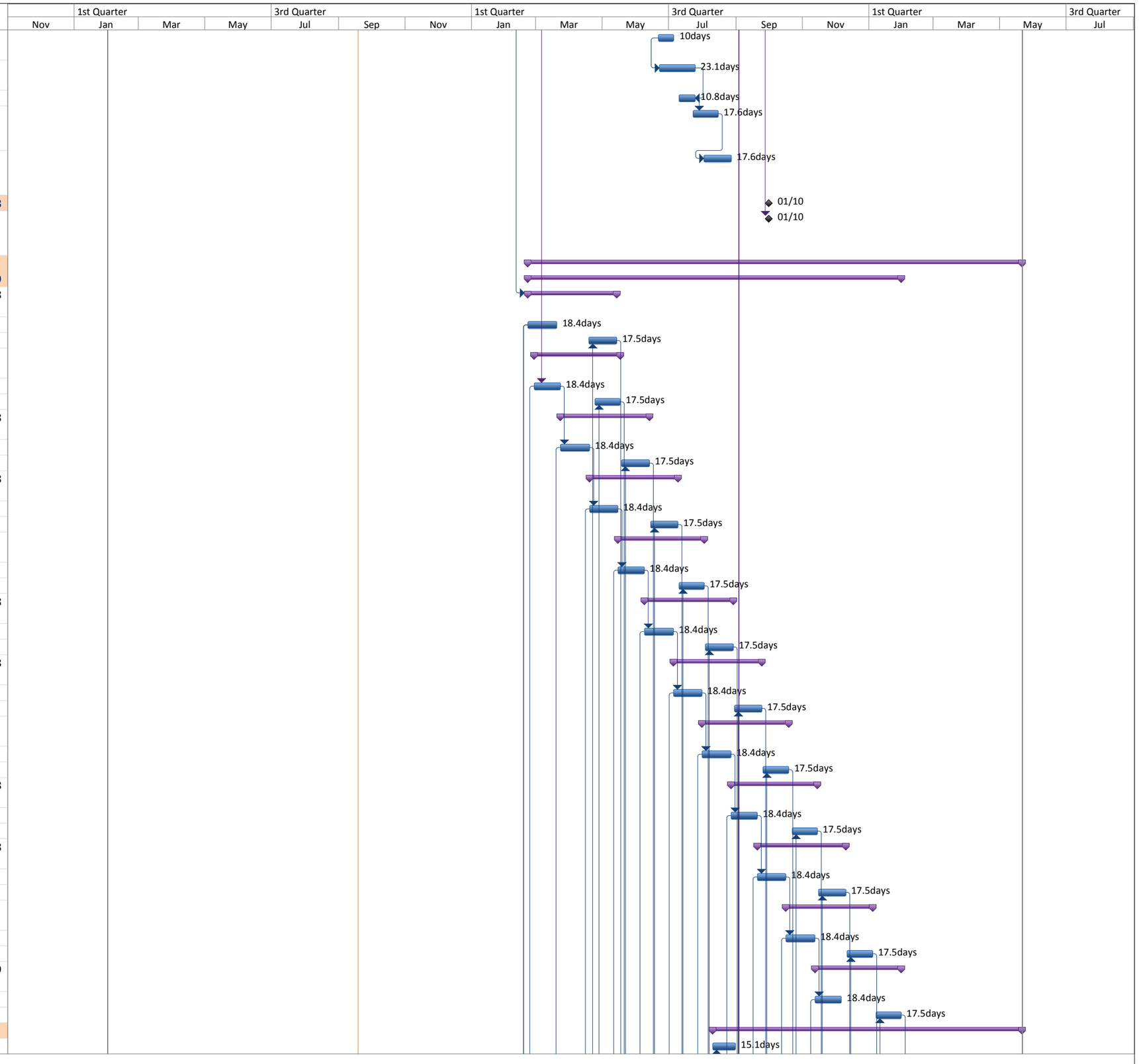
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
129		Level 01. Double glazed curtain wall assembly	41.5days	Thu 15/02/18	Mon 16/04/18
130		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**7.6days**	**Thu 15/02/18**	**Tue 27/02/18**
131		EW-1, EW-2 to Level 02	4days	Thu 15/02/18	Wed 21/02/18
132		Vapour barrier	3days	Fri 16/02/18	Wed 21/02/18
133		16 mm GWB wall board	5.6days	Mon 19/02/18	Tue 27/02/18
134		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**7.6days**	**Wed 21/02/18**	**Mon 05/03/18**
135		EW-1, EW-2 to Level 03	4days	Wed 21/02/18	Tue 27/02/18
136		Vapour barrier	3days	Thu 22/02/18	Tue 27/02/18
137		16 mm GWB wall board	5.6days	Fri 23/02/18	Mon 05/03/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**7.6days**	**Tue 27/02/18**	**Fri 09/03/18**
139		EW-1, EW-2 to Level 04	4days	Tue 27/02/18	Mon 05/03/18
140		Vapour barrier	3days	Wed 28/02/18	Mon 05/03/18
141		16 mm GWB wall board	5.6days	Thu 01/03/18	Fri 09/03/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**7.6days**	**Thu 29/03/18**	**Tue 10/04/18**
143		EW-1, EW-2 to Level 05	4days	Thu 29/03/18	Wed 04/04/18
144		Vapour barrier	3days	Fri 30/03/18	Wed 04/04/18
145		16 mm GWB wall board	5.6days	Mon 02/04/18	Tue 10/04/18
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**7.6days**	**Wed 04/04/18**	**Mon 16/04/18**
147		EW-1, EW-2 to Level 06	4days	Wed 04/04/18	Tue 10/04/18
148		Vapour barrier	3days	Thu 05/04/18	Tue 10/04/18
149		16 mm GWB wall board	5.6days	Fri 06/04/18	Mon 16/04/18
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**7.6days**	**Tue 10/04/18**	**Fri 20/04/18**
151		EW-1, EW-2 to Level 07	4days	Tue 10/04/18	Mon 16/04/18
152		Vapour barrier	3days	Wed 11/04/18	Mon 16/04/18
153		16 mm GWB wall board	5.6days	Thu 12/04/18	Fri 20/04/18



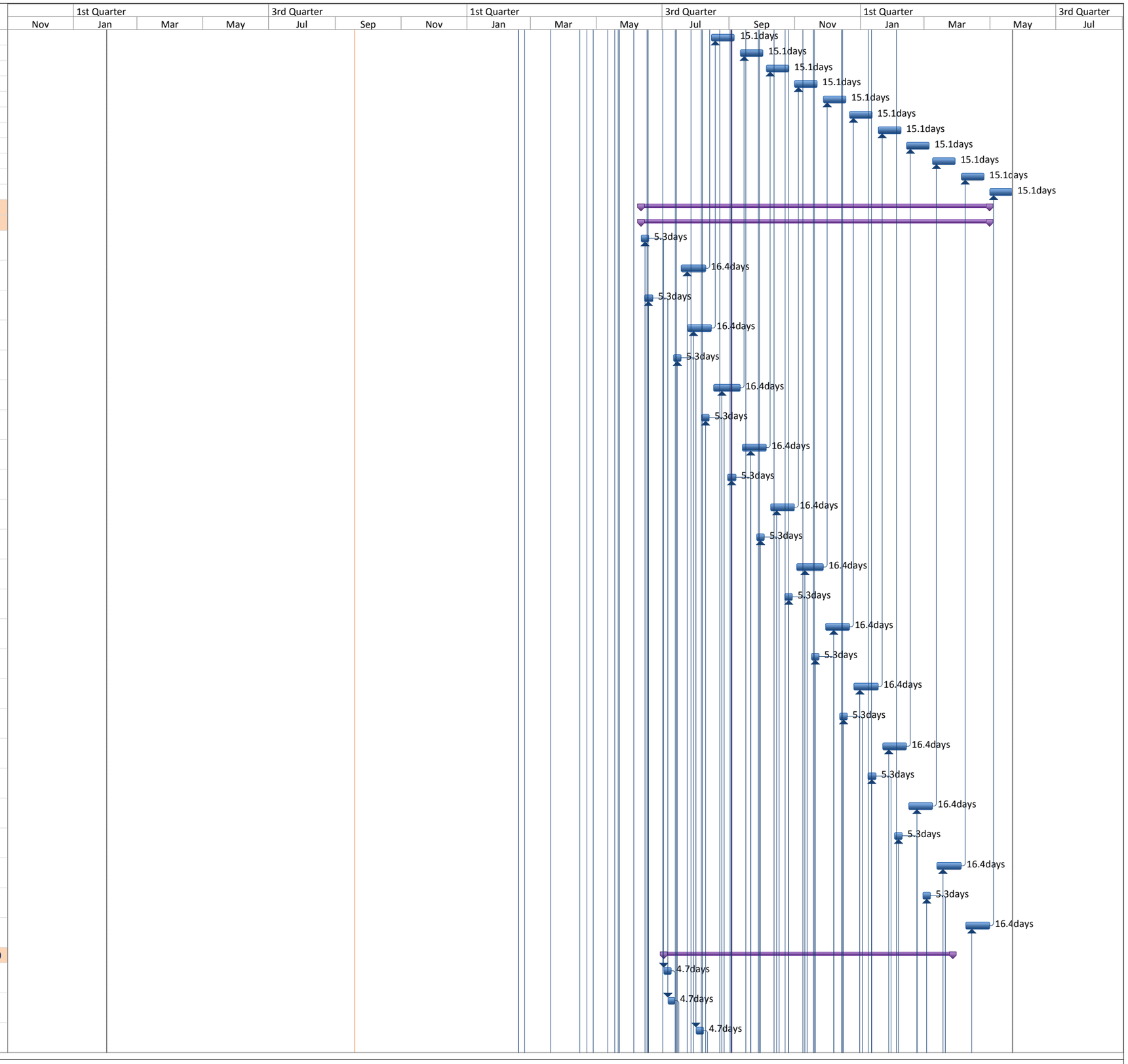
ID		Task Mode	Task Name	Rounded Duration	Start	Finish
154			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**7.6days**	**Thu 10/05/18**	**Tue 22/05/18**
155			EW-1, EW-2 to Level 08	4days	Thu 10/05/18	Wed 16/05/18
156			Vapour barrier	3days	Fri 11/05/18	Wed 16/05/18
157			16 mm GWB wall board	5.6days	Mon 14/05/18	Tue 22/05/18
158			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**7.6days**	**Wed 16/05/18**	**Mon 28/05/18**
159			EW-1, EW-2 to Level 09	4days	Wed 16/05/18	Tue 22/05/18
160			Vapour barrier	3days	Thu 17/05/18	Tue 22/05/18
161			16 mm GWB wall board	5.6days	Fri 18/05/18	Mon 28/05/18
162			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**7.6days**	**Tue 22/05/18**	**Fri 01/06/18**
163			EW-1, EW-2 to Level 10	4days	Tue 22/05/18	Mon 28/05/18
164			Vapour barrier	3days	Wed 23/05/18	Mon 28/05/18
165			16 mm GWB wall board	5.6days	Thu 24/05/18	Fri 01/06/18
166			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**7.6days**	**Thu 07/06/18**	**Tue 19/06/18**
167			EW-1, EW-2 to Level 11	4days	Thu 07/06/18	Wed 13/06/18
168			Vapour barrier	3days	Fri 08/06/18	Wed 13/06/18
169			16 mm GWB wall board	5.6days	Mon 11/06/18	Tue 19/06/18
170			**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**7.6days**	**Wed 13/06/18**	**Mon 25/06/18**
171			EW-1, EW-2 to Level 12	4days	Wed 13/06/18	Tue 19/06/18
172			Vapour barrier	3days	Thu 14/06/18	Tue 19/06/18
173			16 mm GWB wall board	5.6days	Fri 15/06/18	Mon 25/06/18
174			**A33 Windows and entrancies**	**18days**	**Mon 16/04/18**	**Thu 10/05/18**
175			Glazed vestibule door c/w frame, standard hardware	6.8days	Mon 16/04/18	Tue 24/04/18
176			Exterior metal doors c/w frame and hardware	11.2days	Tue 24/04/18	Thu 10/05/18
177			**A34 Roof Coverings**	**47days**	**Thu 21/06/18**	**Mon 27/08/18**
178			Hardscape. Precast concrete pavers	24.1days	Thu 21/06/18	Wed 25/07/18
179			**Modified bituminous membrane**	**47days**	**Thu 21/06/18**	**Mon 27/08/18**



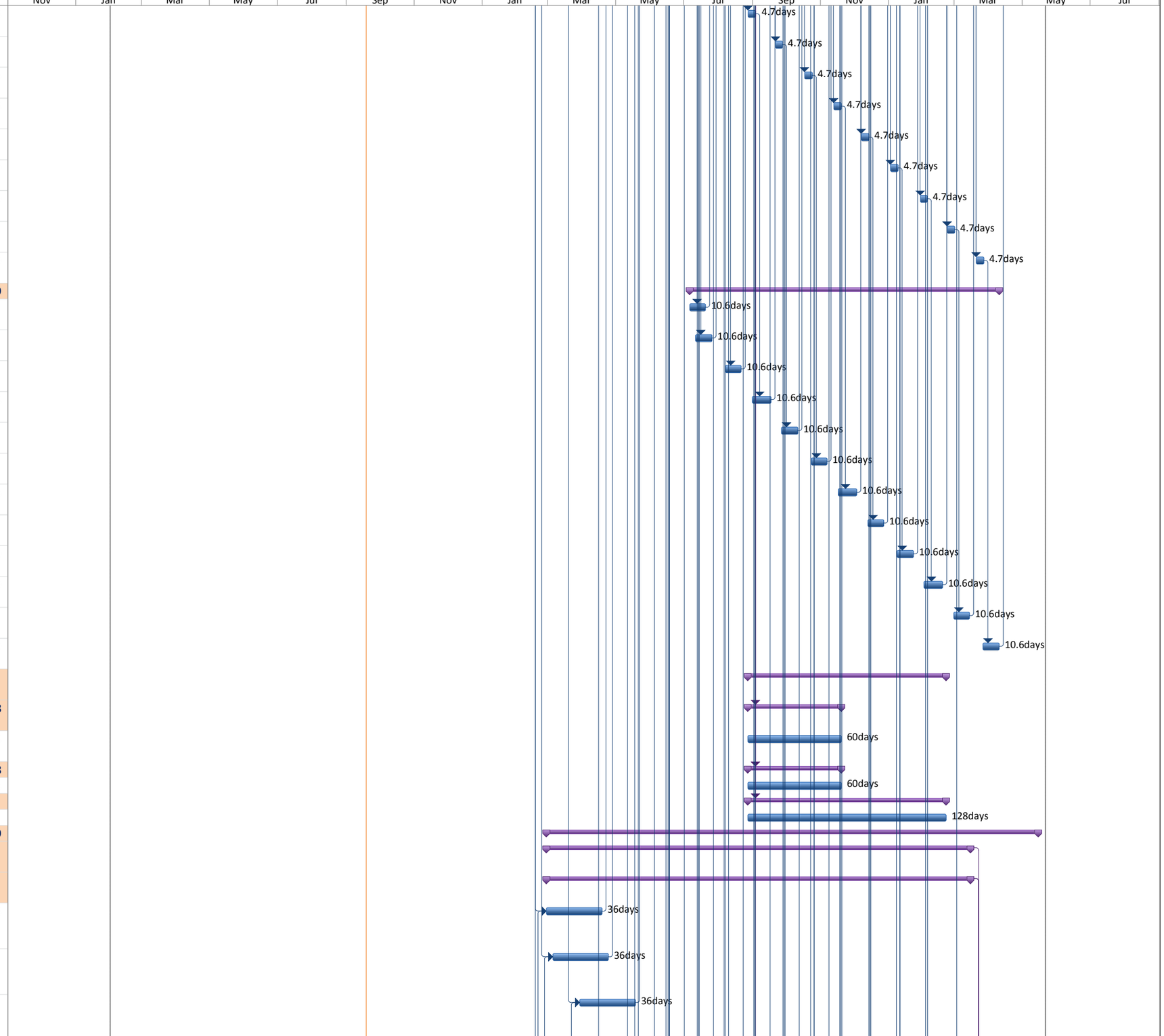
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
180		6 mm vapour barier	10days	Thu 21/06/18	Thu 05/07/18
181		150 mm rigid insulation	23.1days	Fri 22/06/18	Wed 25/07/18
182		12 mm plywood	10.8days	Tue 10/07/18	Wed 25/07/18
183		Bituminous membrane base layer	17.6days	Mon 23/07/18	Wed 15/08/18
184		Bituminous membrane finish layer	17.6days	Thu 02/08/18	Mon 27/08/18
185		**A35 Projections**	**0days**	**Mon 01/10/18**	**Mon 01/10/18**
186		All projections included in relative sections	0days	Mon 01/10/18	Mon 01/10/18
187		**B1 Partitions and Doors**	**324.1days**	**Wed 21/02/18**	**Tue 21/05/19**
188		**B11 Partitions**	**245days**	**Wed 21/02/18**	**Wed 30/01/19**
189		**GWB partitions to Level 01**	**57.5days**	**Wed 21/02/18**	**Mon 14/05/18**
190		Metal studs	18.4days	Wed 21/02/18	Tue 20/03/18
191		GWB	17.5days	Wed 18/04/18	Mon 14/05/18
192		**GWB partitions to Level 02**	**57.5days**	**Tue 27/02/18**	**Thu 17/05/18**
193		Metal studs	18.4days	Tue 27/02/18	Fri 23/03/18
194		GWB	17.5days	Tue 24/04/18	Thu 17/05/18
195		**GWB partitions to Level 03**	**57.5days**	**Fri 23/03/18**	**Wed 13/06/18**
196		Metal studs	18.4days	Fri 23/03/18	Thu 19/04/18
197		GWB	17.5days	Fri 18/05/18	Wed 13/06/18
198		**GWB partitions to Level 04**	**57.5days**	**Thu 19/04/18**	**Mon 09/07/18**
199		Metal studs	18.4days	Thu 19/04/18	Tue 15/05/18
200		GWB	17.5days	Thu 14/06/18	Mon 09/07/18
201		**GWB partitions to Level 05**	**57.5days**	**Tue 15/05/18**	**Thu 02/08/18**
202		Metal studs	18.4days	Tue 15/05/18	Fri 08/06/18
203		GWB	17.5days	Tue 10/07/18	Thu 02/08/18
204		**GWB partitions to Level 06**	**57.5days**	**Fri 08/06/18**	**Wed 29/08/18**
205		Metal studs	18.4days	Fri 08/06/18	Thu 05/07/18
206		GWB	17.5days	Fri 03/08/18	Wed 29/08/18
207		**GWB partitions to Level 07**	**57.5days**	**Thu 05/07/18**	**Mon 24/09/18**
208		Metal studs	18.4days	Thu 05/07/18	Tue 31/07/18
209		GWB	17.5days	Thu 30/08/18	Mon 24/09/18
210		**GWB partitions to Level 08**	**57.5days**	**Tue 31/07/18**	**Fri 19/10/18**
211		Metal studs	18.4days	Tue 31/07/18	Mon 27/08/18
212		GWB	17.5days	Tue 25/09/18	Fri 19/10/18
213		**GWB partitions to Level 09**	**57.5days**	**Mon 27/08/18**	**Wed 14/11/18**
214		Metal studs	18.4days	Mon 27/08/18	Thu 20/09/18
215		GWB	17.5days	Mon 22/10/18	Wed 14/11/18
216		**GWB partitions to Level 10**	**57.5days**	**Thu 20/09/18**	**Mon 10/12/18**
217		Metal studs	18.4days	Thu 20/09/18	Tue 16/10/18
218		GWB	17.5days	Thu 15/11/18	Mon 10/12/18
219		**GWB partitions to Level 11**	**57.5days**	**Tue 16/10/18**	**Fri 04/01/19**
220		Metal studs	18.4days	Tue 16/10/18	Mon 12/11/18
221		GWB	17.5days	Tue 11/12/18	Fri 04/01/19
222		**GWB partitions to Level 12**	**57.5days**	**Mon 12/11/18**	**Wed 30/01/19**
223		Metal studs	18.4days	Mon 12/11/18	Thu 06/12/18
224		GWB	17.5days	Mon 07/01/19	Wed 30/01/19
225		**B12 Doors**	**202.7days**	**Fri 10/08/18**	**Tue 21/05/19**
226		Doors to Level 01	15.1days	Fri 10/08/18	Fri 31/08/18



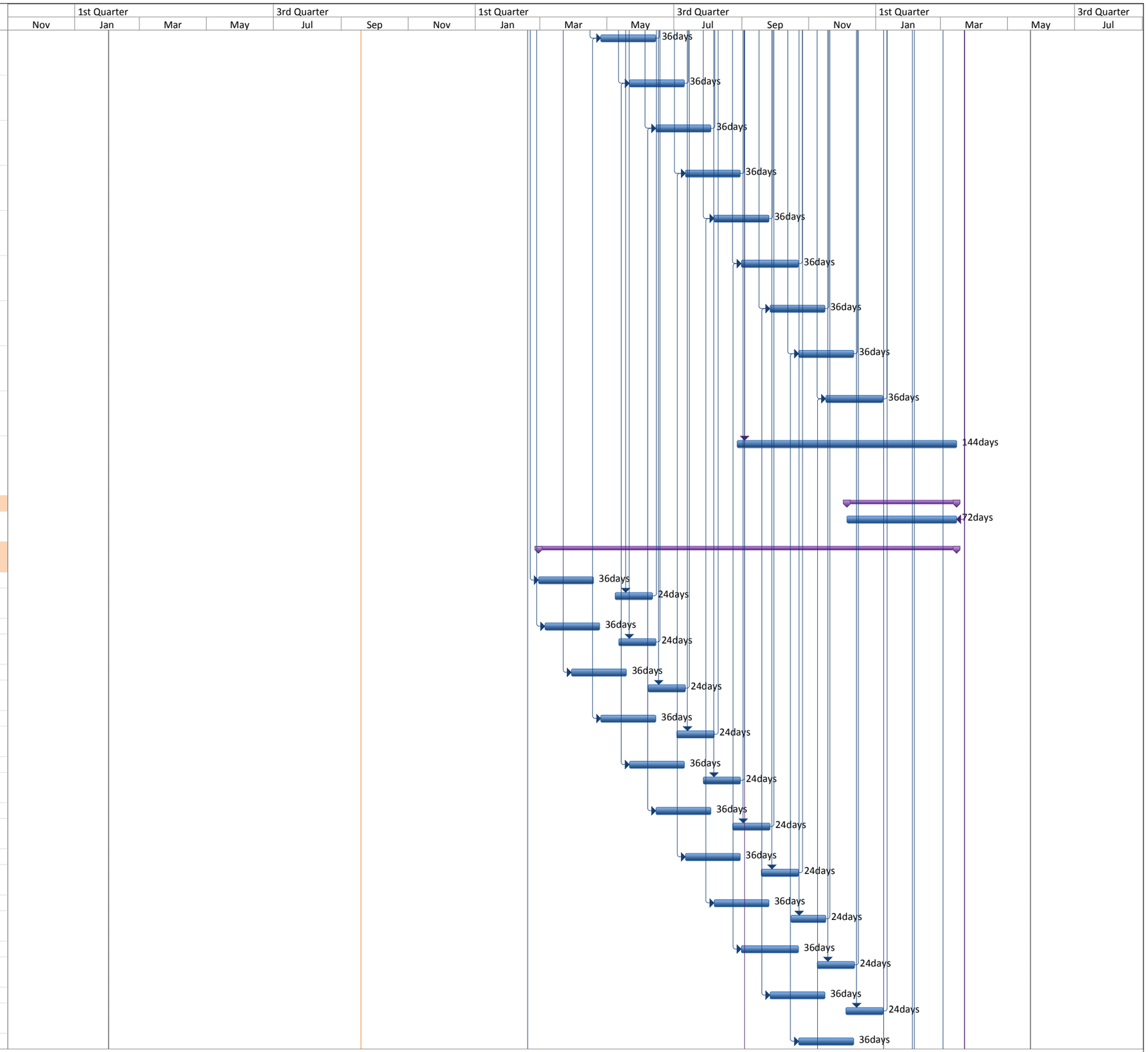
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
227		Doors to Level 02	15.1days	Wed 15/08/18	Wed 05/09/18
228		Doors to Level 03	15.1days	Tue 11/09/18	Tue 02/10/18
229		Doors to Level 04	15.1days	Fri 05/10/18	Fri 26/10/18
230		Doors to Level 05	15.1days	Wed 31/10/18	Wed 21/11/18
231		Doors to Level 06	15.1days	Tue 27/11/18	Tue 18/12/18
232		Doors to Level 07	15.1days	Fri 21/12/18	Fri 11/01/19
233		Doors to Level 08	15.1days	Thu 17/01/19	Thu 07/02/19
234		Doors to Level 09	15.1days	Tue 12/02/19	Tue 05/03/19
235		Doors to Level 10	15.1days	Fri 08/03/19	Fri 29/03/19
236		Doors to Level 11	15.1days	Thu 04/04/19	Thu 25/04/19
237		Doors to Level 12	15.1days	Tue 30/04/19	Tue 21/05/19
238		**B2 Finishes**	**231.5days**	**Mon 11/06/18**	**Tue 30/04/19**
239		**B21 Floor Finishes**	**231.5days**	**Mon 11/06/18**	**Tue 30/04/19**
240		50mm concrete topping to Level 01	5.3days	Mon 11/06/18	Mon 18/06/18
241		Floor finishes to Level 01	16.4days	Wed 18/07/18	Fri 10/08/18
242		50mm concrete topping to Level 02	5.3days	Thu 14/06/18	Fri 22/06/18
243		Floor finishes to Level 02	16.4days	Tue 24/07/18	Wed 15/08/18
244		50mm concrete topping to Level 03	5.3days	Wed 11/07/18	Wed 18/07/18
245		Floor finishes to Level 03	16.4days	Fri 17/08/18	Tue 11/09/18
246		50mm concrete topping to Level 04	5.3days	Mon 06/08/18	Mon 13/08/18
247		Floor finishes to Level 04	16.4days	Thu 13/09/18	Fri 05/10/18
248		50mm concrete topping to Level 05	5.3days	Thu 30/08/18	Fri 07/09/18
249		Floor finishes to Level 05	16.4days	Tue 09/10/18	Wed 31/10/18
250		50mm concrete topping to Level 06	5.3days	Wed 26/09/18	Wed 03/10/18
251		Floor finishes to Level 06	16.4days	Fri 02/11/18	Tue 27/11/18
252		50mm concrete topping to Level 07	5.3days	Mon 22/10/18	Mon 29/10/18
253		Floor finishes to Level 07	16.4days	Thu 29/11/18	Fri 21/12/18
254		50mm concrete topping to Level 08	5.3days	Fri 16/11/18	Fri 23/11/18
255		Floor finishes to Level 08	16.4days	Tue 25/12/18	Thu 17/01/19
256		50mm concrete topping to Level 09	5.3days	Wed 12/12/18	Wed 19/12/18
257		Floor finishes to Level 09	16.4days	Mon 21/01/19	Tue 12/02/19
258		50mm concrete topping to Level 10	5.3days	Mon 07/01/19	Tue 15/01/19
259		Floor finishes to Level 10	16.4days	Thu 14/02/19	Fri 08/03/19
260		50mm concrete topping to Level 11	5.3days	Fri 01/02/19	Fri 08/02/19
261		Floor finishes to Level 11	16.4days	Tue 12/03/19	Thu 04/04/19
262		50mm concrete topping to Level 12	5.3days	Wed 27/02/19	Wed 06/03/19
263		Floor finishes to Level 12	16.4days	Mon 08/04/19	Tue 30/04/19
264		**B22 Ceiling Finishes**	**192.3days**	**Mon 02/07/18**	**Wed 27/03/19**
265		Ceiling finishes to Level 01	4.7days	Mon 02/07/18	Mon 09/07/18
266		Ceiling finishes to Level 02	4.7days	Fri 06/07/18	Thu 12/07/18
267		Ceiling finishes to Level 03	4.7days	Wed 01/08/18	Wed 08/08/18



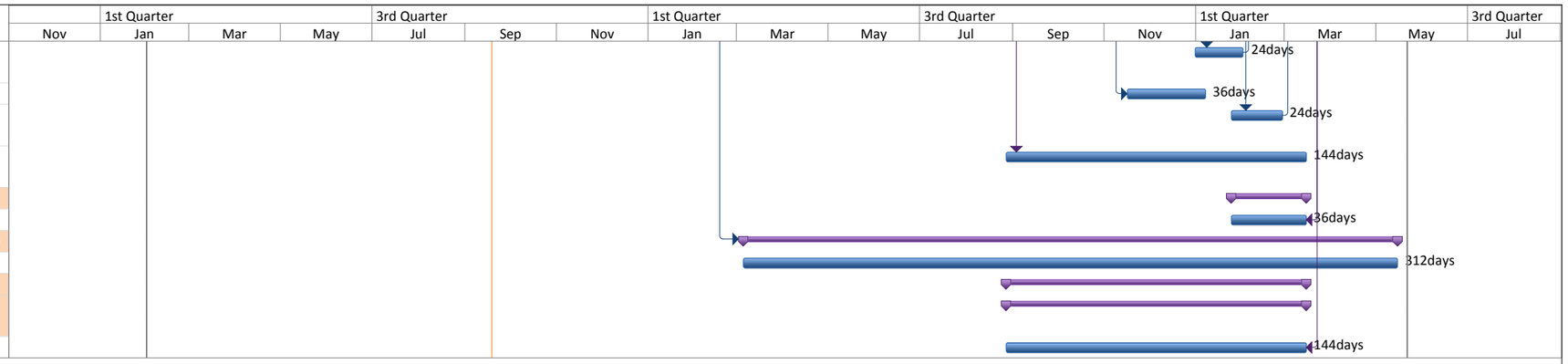
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
268		Ceiling finishes to Level 04	4.7days	Mon 27/08/18	Mon 03/09/18
269		Ceiling finishes to Level 05	4.7days	Fri 21/09/18	Thu 27/09/18
270		Ceiling finishes to Level 06	4.7days	Wed 17/10/18	Wed 24/10/18
271		Ceiling finishes to Level 07	4.7days	Mon 12/11/18	Mon 19/11/18
272		Ceiling finishes to Level 08	4.7days	Fri 07/12/18	Fri 14/12/18
273		Ceiling finishes to Level 09	4.7days	Wed 02/01/19	Wed 09/01/19
274		Ceiling finishes to Level 10	4.7days	Tue 29/01/19	Mon 04/02/19
275		Ceiling finishes to Level 11	4.7days	Fri 22/02/19	Fri 01/03/19
276		Ceiling finishes to Level 12	4.7days	Wed 20/03/19	Wed 27/03/19
277		**B23 Wall Finishes**	**198.1days**	**Fri 06/07/18**	**Wed 10/04/19**
278		Wall finishes to Level 01	10.6days	Fri 06/07/18	Fri 20/07/18
279		Wall finishes to Level 02	10.6days	Wed 11/07/18	Thu 26/07/18
280		Wall finishes to Level 03	10.6days	Tue 07/08/18	Tue 21/08/18
281		Wall finishes to Level 04	10.6days	Fri 31/08/18	Mon 17/09/18
282		Wall finishes to Level 05	10.6days	Wed 26/09/18	Thu 11/10/18
283		Wall finishes to Level 06	10.6days	Tue 23/10/18	Tue 06/11/18
284		Wall finishes to Level 07	10.6days	Fri 16/11/18	Mon 03/12/18
285		Wall finishes to Level 08	10.6days	Thu 13/12/18	Thu 27/12/18
286		Wall finishes to Level 09	10.6days	Tue 08/01/19	Wed 23/01/19
287		Wall finishes to Level 10	10.6days	Fri 01/02/19	Mon 18/02/19
288		Wall finishes to Level 11	10.6days	Thu 28/02/19	Thu 14/03/19
289		Wall finishes to Level 12	10.6days	Tue 26/03/19	Wed 10/04/19
290		**B3 Fittings and Equipment**	**128days**	**Mon 27/08/18**	**Thu 21/02/19**
291		**B31 Fittings and Fixtures**	**60days**	**Mon 27/08/18**	**Mon 19/11/18**
292		Fittings and Fixtures	60days	Mon 27/08/18	Mon 19/11/18
293		**B32 Equipment**	**60days**	**Mon 27/08/18**	**Mon 19/11/18**
294		Equipment	60days	Mon 27/08/18	Mon 19/11/18
295		**B33 Elevators**	**128days**	**Mon 27/08/18**	**Thu 21/02/19**
296		Elevators	128days	Mon 27/08/18	Thu 21/02/19
297		**C. Services**	**315.8days**	**Tue 27/02/18**	**Wed 15/05/19**
298		**C1. Mechanical Services**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
299		**C11. Plumbing and Drainage**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
300		Mechanical elements to Level 01	36days	Tue 27/02/18	Wed 18/04/18
301		Mechanical elements to Level 02	36days	Mon 05/03/18	Tue 24/04/18
302		Mechanical elements to Level 03	36days	Thu 29/03/18	Fri 18/05/18



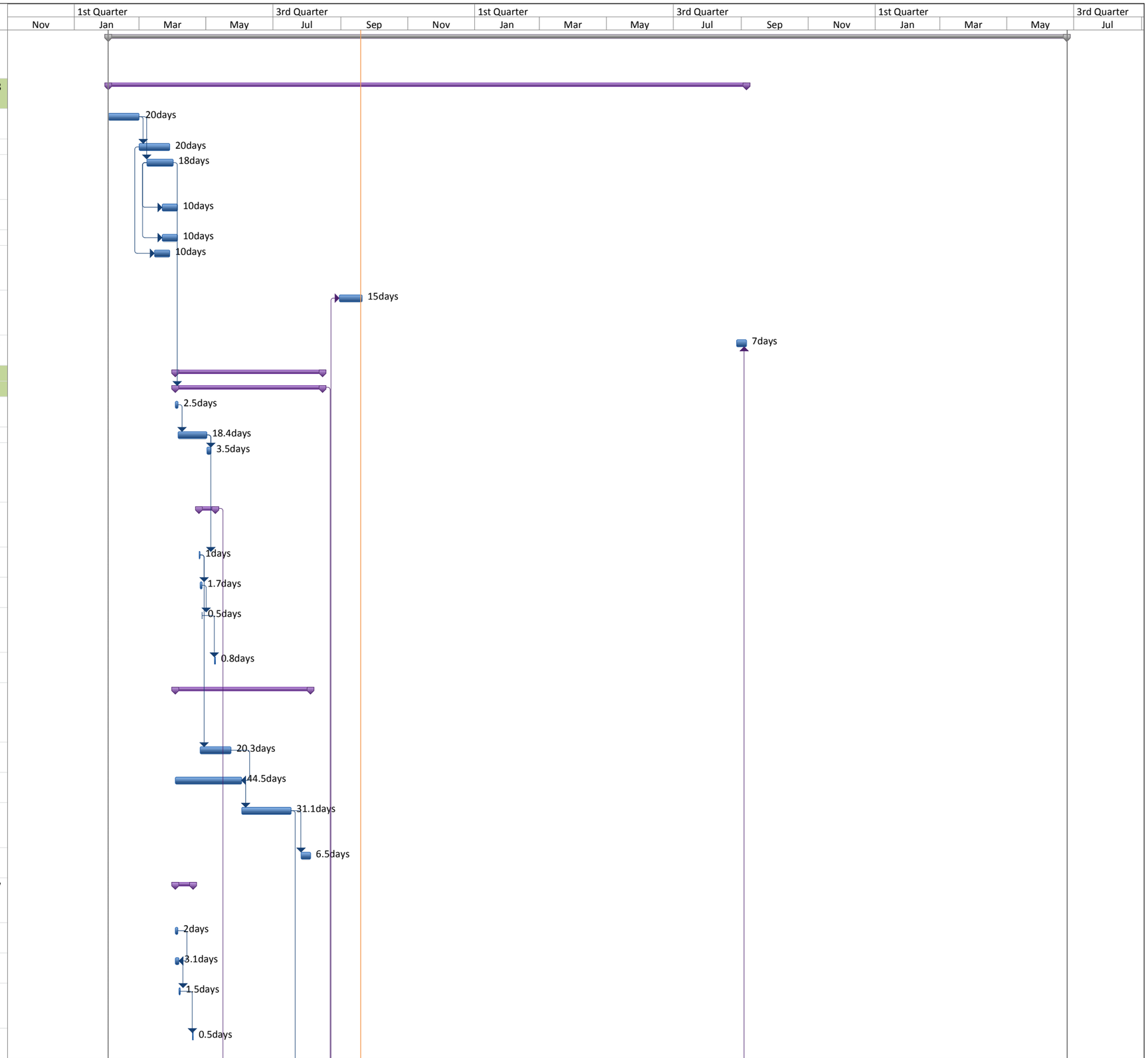
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
303		Mechanical elements to Level 04	36days	Wed 25/04/18	Thu 14/06/18
304		Mechanical elements to Level 05	36days	Mon 21/05/18	Tue 10/07/18
305		Mechanical elements to Level 06	36days	Thu 14/06/18	Fri 03/08/18
306		Mechanical elements to Level 07	36days	Wed 11/07/18	Thu 30/08/18
307		Mechanical elements to Level 08	36days	Mon 06/08/18	Tue 25/09/18
308		Mechanical elements to Level 09	36days	Fri 31/08/18	Mon 22/10/18
309		Mechanical elements to Level 10	36days	Wed 26/09/18	Thu 15/11/18
310		Mechanical elements to Level 11	36days	Mon 22/10/18	Tue 11/12/18
311		Mechanical elements to Level 12	36days	Fri 16/11/18	Mon 07/01/19
312		Mechanical elements other, include mechanical rooms	144days	Mon 27/08/18	Fri 15/03/19
313		**C12. Fire Protection**	**72days**	**Wed 05/12/18**	**Fri 15/03/19**
314		Fire protection services	72days	Wed 05/12/18	Fri 15/03/19
315		**C13. HVAC. Radiant floor heating.**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
316		HVAC to Level 01	36days	Tue 27/02/18	Wed 18/04/18
317		Radiant floor heating to Level 01	24days	Tue 08/05/18	Mon 11/06/18
318		HVAC to Level 02	36days	Mon 05/03/18	Tue 24/04/18
319		Radiant floor heating to Level 02	24days	Fri 11/05/18	Thu 14/06/18
320		HVAC to Level 03	36days	Thu 29/03/18	Fri 18/05/18
321		Radiant floor heating to Level 03	24days	Thu 07/06/18	Wed 11/07/18
322		HVAC to Level 04	36days	Wed 25/04/18	Thu 14/06/18
323		Radiant floor heating to Level 04	24days	Tue 03/07/18	Mon 06/08/18
324		HVAC to Level 05	36days	Mon 21/05/18	Tue 10/07/18
325		Radiant floor heating to Level 05	24days	Fri 27/07/18	Thu 30/08/18
326		HVAC to Level 06	36days	Thu 14/06/18	Fri 03/08/18
327		Radiant floor heating to Level 06	24days	Thu 23/08/18	Wed 26/09/18
328		HVAC to Level 07	36days	Wed 11/07/18	Thu 30/08/18
329		Radiant floor heating to Level 07	24days	Tue 18/09/18	Mon 22/10/18
330		HVAC to Level 08	36days	Mon 06/08/18	Tue 25/09/18
331		Radiant floor heating to Level 08	24days	Mon 15/10/18	Fri 16/11/18
332		HVAC to Level 09	36days	Fri 31/08/18	Mon 22/10/18
333		Radiant floor heating to Level 09	24days	Thu 08/11/18	Wed 12/12/18
334		HVAC to Level 10	36days	Wed 26/09/18	Thu 15/11/18
335		Radiant floor heating to Level 10	24days	Tue 04/12/18	Mon 07/01/19
336		HVAC to Level 11	36days	Mon 22/10/18	Tue 11/12/18



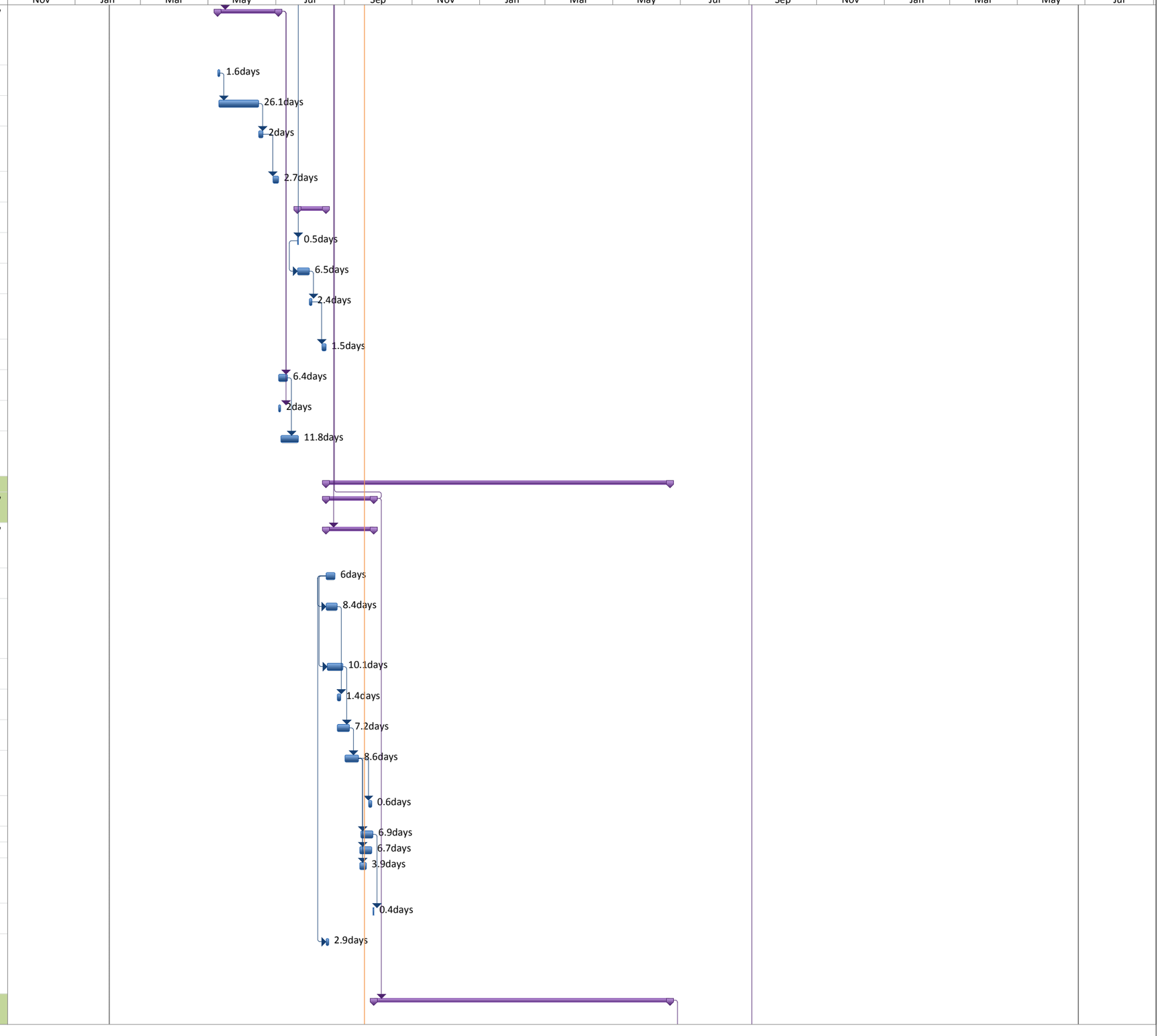
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
337		Radiant floor heating to Level 11	24days	Mon 31/12/18	Fri 01/02/19
338		HVAC to Level 12	36days	Fri 16/11/18	Mon 07/01/19
339		Radiant floor heating to Level 12	24days	Thu 24/01/19	Wed 27/02/19
340		Other HVAC to the rest of builduing	144days	Mon 27/08/18	Fri 15/03/19
341		**C14. Controls**	**36days**	**Thu 24/01/19**	**Fri 15/03/19**
342		DDC Controls	36days	Thu 24/01/19	Fri 15/03/19
343		**C2. Elecrtical Services**	**312days**	**Mon 05/03/18**	**Wed 15/05/19**
344		Electrical Services	312days	Mon 05/03/18	Wed 15/05/19
345		**D1. Site Work**	**144days**	**Mon 27/08/18**	**Fri 15/03/19**
346		**D11. Site Development**	**144days**	**Mon 27/08/18**	**Fri 15/03/19**
347		Site work	144days	Mon 27/08/18	Fri 15/03/19



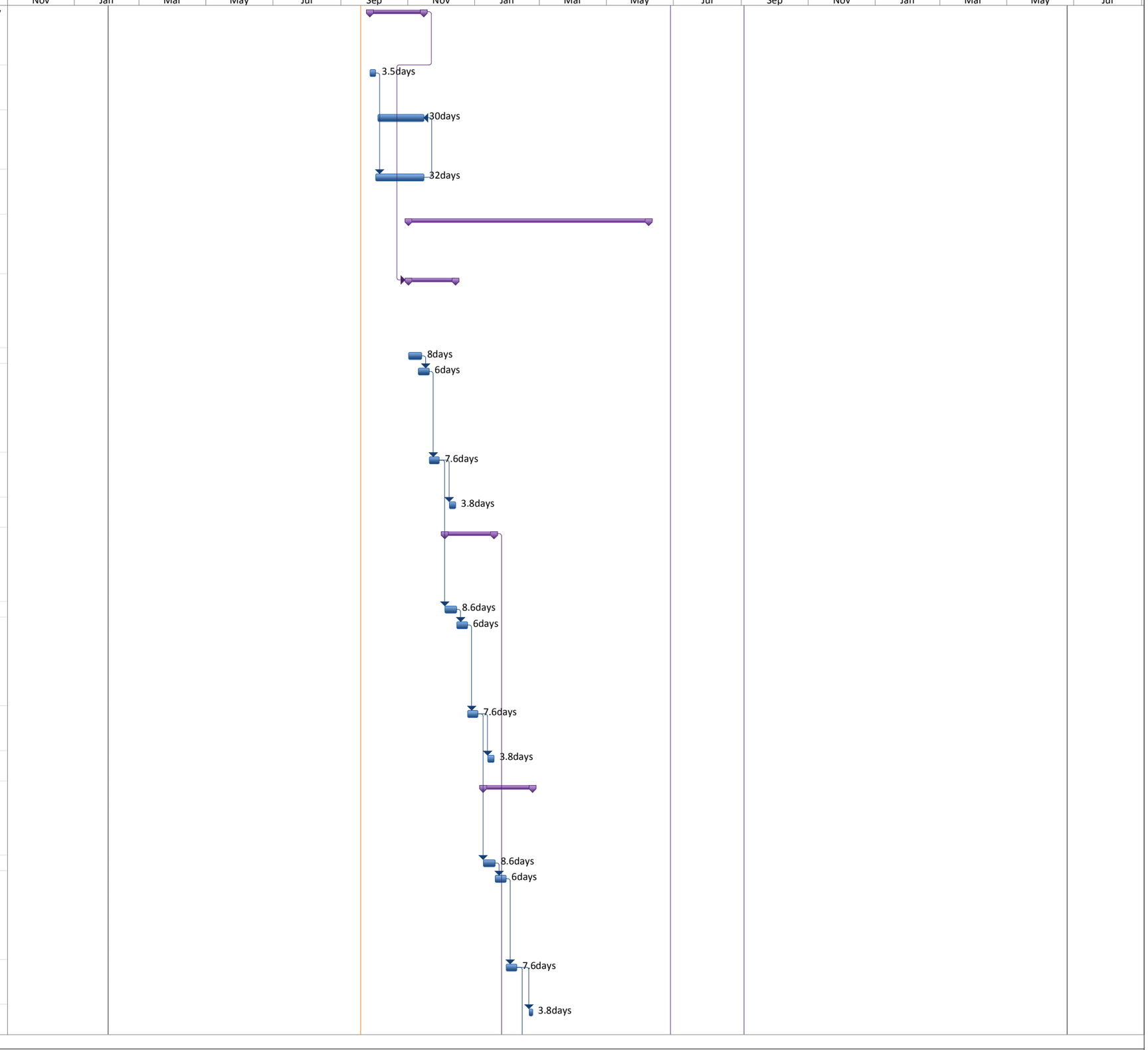
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Encapsulated Mass Timber Building - Commercial**	**623.7days**	**Wed 01/02/17**	**Mon 24/06/19**
1		**General Conditions and Management**	**415.7days**	**Wed 01/02/17**	**Wed 05/09/18**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 2 cranes	15days	Wed 30/08/17	Wed 20/09/17
9		Tower cranes dismantle - 2 cranes	7days	Mon 27/08/18	Wed 05/09/18
10		**A1 Substructure**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
11		**A11 Foundations**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
12		Clearing and grubbing	2.5days	Mon 03/04/17	Wed 05/04/17
13		Excavation	18.4days	Wed 05/04/17	Mon 01/05/17
14		Perimeter drain c/w filter socket and granular cover	3.5days	Mon 01/05/17	Fri 05/05/17
15		**Reinforced concrete strip footing**	**11days**	**Mon 24/04/17**	**Tue 09/05/17**
16		Concrete reinforcement	1days	Mon 24/04/17	Tue 25/04/17
17		Formwork to sides	1.7days	Tue 25/04/17	Thu 27/04/17
18		Concrete placing by pumps	0.5days	Thu 27/04/17	Thu 27/04/17
19		Stripping formwork	0.8days	Mon 08/05/17	Tue 09/05/17
20		**Reinforced concrete pad footing to columns**	**89.1days**	**Mon 03/04/17**	**Fri 04/08/17**
21		Concrete reinforcement	20.3days	Tue 25/04/17	Tue 23/05/17
22		Formwork to sides	44.5days	Mon 03/04/17	Fri 02/06/17
23		Concrete placing by pumps	31.1days	Fri 02/06/17	Mon 17/07/17
24		Stripping formwork	6.5days	Wed 26/07/17	Fri 04/08/17
25		**Raft slab below elevator & stair cores**	**12.1days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.5days	Thu 06/04/17	Fri 07/04/17
29		Stripping formwork	0.5days	Tue 18/04/17	Wed 19/04/17



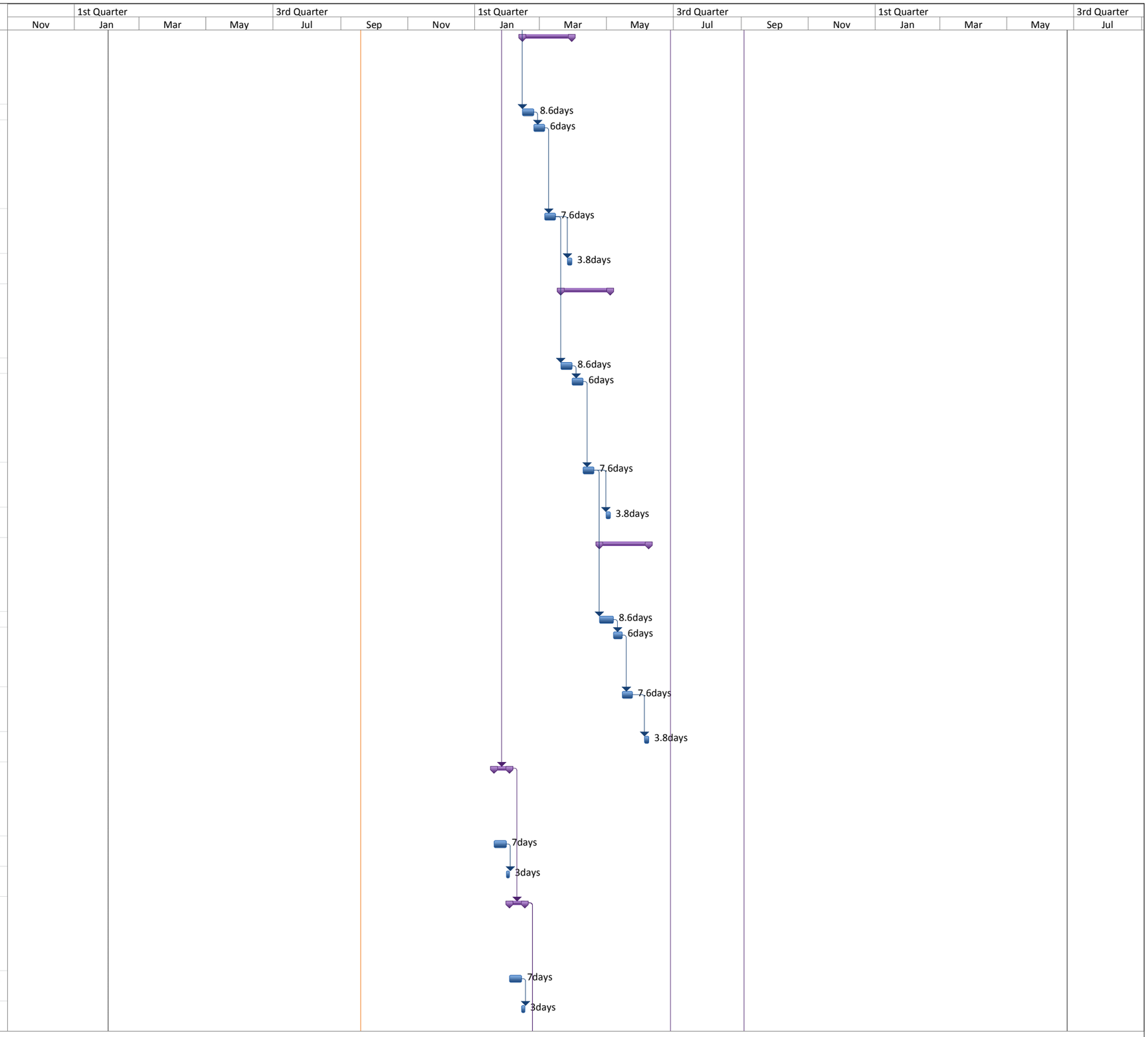
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
30		**Foundation wall. Reinforced concrete 250 mm thick**	**38.4days**	**Tue 09/05/17**	**Mon 03/07/17**
31		Concrete reinforcement	1.6days	Tue 09/05/17	Thu 11/05/17
32		Formwork to sides	26.1days	Wed 10/05/17	Thu 15/06/17
33		Concrete placing by pump	2days	Thu 15/06/17	Mon 19/06/17
34		Stripping formwork	2.7days	Wed 28/06/17	Mon 03/07/17
35		**Piers. Reinforced concrete**	**17.4days**	**Thu 20/07/17**	**Tue 15/08/17**
36		Concrete reinforcement	0.5days	Thu 20/07/17	Fri 21/07/17
37		Formwork to sides	6.5days	Thu 20/07/17	Mon 31/07/17
38		Concrete placing by pumps	2.4days	Mon 31/07/17	Wed 02/08/17
39		Stripping formwork	1.5days	Fri 11/08/17	Tue 15/08/17
40		Extraover for dampproofing	6.4days	Mon 03/07/17	Tue 11/07/17
41		Allowance for expansion joint	2days	Mon 03/07/17	Wed 05/07/17
42		Backfill excavated area c/w compaction	11.8days	Wed 05/07/17	Fri 21/07/17
43		**A2 Structure**	**222.6days**	**Tue 15/08/17**	**Thu 21/06/18**
44		**A21 Lowest Floor Construction**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
45		**250 mm reinforced concrete slab**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
46		6 mm vapour barrier	6days	Tue 15/08/17	Wed 23/08/17
47		300 mm granular fill compacted slab	8.4days	Tue 15/08/17	Fri 25/08/17
48		75 mm rigid insulation	10.1days	Wed 16/08/17	Wed 30/08/17
49		Formwork to openings	1.4days	Fri 25/08/17	Mon 28/08/17
50		Concrete reinforcement	7.2days	Fri 25/08/17	Tue 05/09/17
51		Concrete placing by pump	8.6days	Fri 01/09/17	Wed 13/09/17
52		Stripping formwork	0.6days	Fri 22/09/17	Mon 25/09/17
53		Finishing	6.9days	Fri 15/09/17	Tue 26/09/17
54		Water curing	6.7days	Thu 14/09/17	Mon 25/09/17
55		Sheet membrane curing	3.9days	Thu 14/09/17	Wed 20/09/17
56		Sawcut control joints	0.4days	Tue 26/09/17	Wed 27/09/17
57		Civil works. General civil infrastructure allowance	2.9days	Tue 15/08/17	Thu 17/08/17
58		**A22 Upper Floor Construction**	**191.5days**	**Wed 27/09/17**	**Thu 21/06/18**



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
59		**Level 01 to Level 02, include suspended slab to Level 02**	**35.5days**	**Wed 27/09/17**	**Wed 15/11/17**
60		Concrete columns to Level 01	3.5days	Wed 27/09/17	Mon 02/10/17
61		Concrete stair and elevators cores to Level 01	30days	Wed 04/10/17	Wed 15/11/17
62		Concrete suspended slab to Level 02	32days	Mon 02/10/17	Wed 15/11/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**156.8days**	**Wed 01/11/17**	**Fri 08/06/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 12 cores**	**30.8days**	**Wed 01/11/17**	**Thu 14/12/17**
65		Rebar	8days	Wed 01/11/17	Mon 13/11/17
66		Installation of customed engineered formwork. Height for 2 floors	6days	Fri 10/11/17	Mon 20/11/17
67		Concrete placing by pumps	7.6days	Mon 20/11/17	Wed 29/11/17
68		Stripping formwork	3.8days	Fri 08/12/17	Thu 14/12/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 12 cores**	**32.9days**	**Mon 04/12/17**	**Thu 18/01/18**
70		Rebar	8.6days	Mon 04/12/17	Fri 15/12/17
71		Installation of engineered formwork. Height for 2 floors	6days	Fri 15/12/17	Mon 25/12/17
72		Concrete placing by pumps	7.6days	Mon 25/12/17	Wed 03/01/18
73		Stripping formwork	3.8days	Fri 12/01/18	Thu 18/01/18
74		**Concrete stair and elevator cores to Level 06, Level 07. 12 cores**	**32.9days**	**Mon 08/01/18**	**Thu 22/02/18**
75		Rebar	8.6days	Mon 08/01/18	Fri 19/01/18
76		Installation of engineered formwork. Height for 2 floors	6days	Fri 19/01/18	Mon 29/01/18
77		Concrete placing by pumps	7.6days	Mon 29/01/18	Thu 08/02/18
78		Stripping formwork	3.8days	Mon 19/02/18	Thu 22/02/18



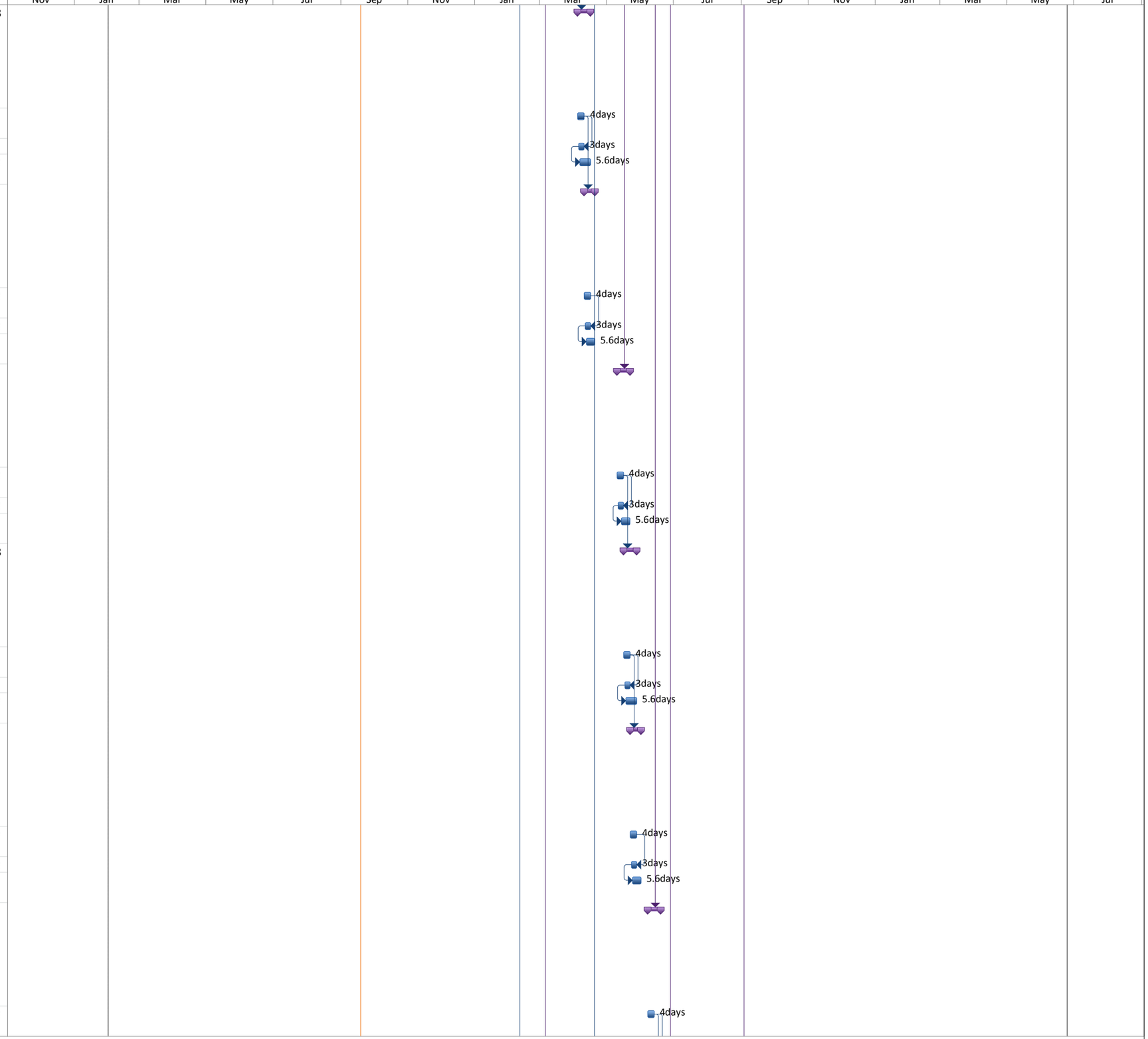
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
79		**Concrete stair and elevator cores to Level 08, Level 09. 12 cores**	**32.9days**	**Tue 13/02/18**	**Fri 30/03/18**
80		Rebar	8.6days	Tue 13/02/18	Fri 23/02/18
81		Installation of engineered formwork. Height for 2 floors	6days	Fri 23/02/18	Mon 05/03/18
82		Concrete placing by pumps	7.6days	Mon 05/03/18	Thu 15/03/18
83		Stripping formwork	3.8days	Mon 26/03/18	Fri 30/03/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 12 cores**	**32.9days**	**Tue 20/03/18**	**Fri 04/05/18**
85		Rebar	8.6days	Tue 20/03/18	Fri 30/03/18
86		Installation of engineered formwork. Height for 2 floors	6days	Fri 30/03/18	Mon 09/04/18
87		Concrete placing by pumps	7.6days	Mon 09/04/18	Thu 19/04/18
88		Stripping formwork	3.8days	Mon 30/04/18	Fri 04/05/18
89		**Concrete stair and elevator cores to Level 12, Roof. 12 cores**	**32.9days**	**Tue 24/04/18**	**Fri 08/06/18**
90		Rebar	8.6days	Tue 24/04/18	Mon 07/05/18
91		Installation of engineered formwork	6days	Mon 07/05/18	Tue 15/05/18
92		Concrete placing by pumps	7.6days	Tue 15/05/18	Thu 24/05/18
93		Stripping formwork	3.8days	Mon 04/06/18	Fri 08/06/18
94		**Mass Timber Frame c/w columns to Level 02, flat-plate slab to Level 03**	**10days**	**Thu 18/01/18**	**Thu 01/02/18**
95		Prefabricated GLT columns	7days	Thu 18/01/18	Mon 29/01/18
96		CLT 2-way panels	3days	Mon 29/01/18	Thu 01/02/18
97		**Mass Timber Frame c/w columns to Level 03, flat-plate slab to Level 04**	**10days**	**Thu 01/02/18**	**Thu 15/02/18**
98		Prefabricated GLT columns	7days	Thu 01/02/18	Mon 12/02/18
99		CLT 2-way panels	3days	Mon 12/02/18	Thu 15/02/18



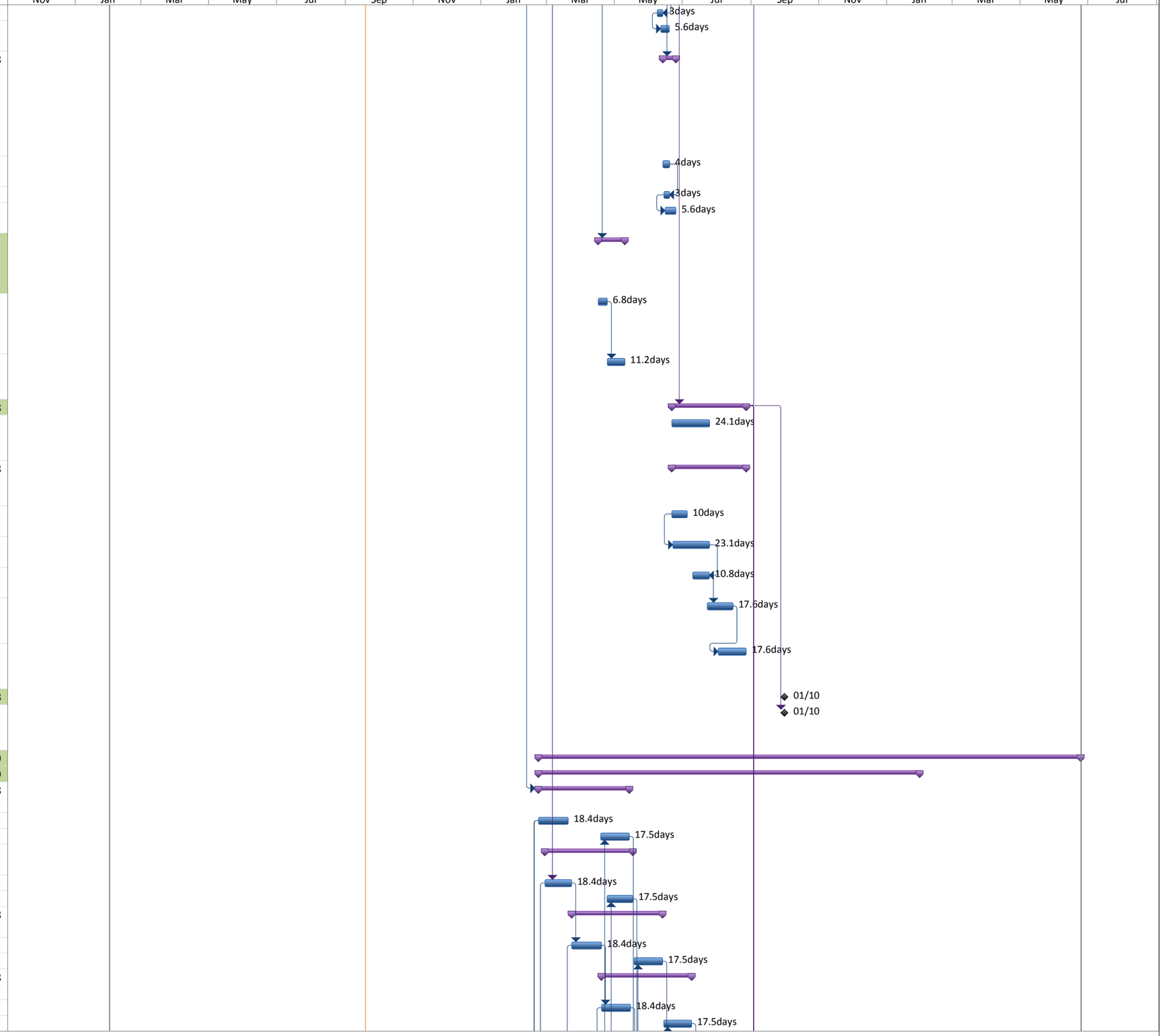
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
100		**Mass Timber Frame c/w columns to Level 04, flat-plate slab to Level 05**	**10days**	**Thu 15/02/18**	**Thu 01/03/18**
101		Prefabricated GLT columns	7days	Thu 15/02/18	Mon 26/02/18
102		CLT 2-way panels	3days	Mon 26/02/18	Thu 01/03/18
103		**Mass Timber Frame c/w columns to Level 05, flat-plate slab to Level 06**	**10days**	**Thu 01/03/18**	**Thu 15/03/18**
104		Prefabricated GLT columns	7days	Thu 01/03/18	Mon 12/03/18
105		CLT 2-way panels	3days	Mon 12/03/18	Thu 15/03/18
106		**Mass Timber Frame c/w columns to Level 06, flat-plate slab to Level 07**	**10days**	**Thu 15/03/18**	**Thu 29/03/18**
107		Prefabricated GLT columns	7days	Thu 15/03/18	Mon 26/03/18
108		CLT 2-way panels	3days	Mon 26/03/18	Thu 29/03/18
109		**Mass Timber Frame c/w columns to Level 07, flat-plate slab to Level 08**	**10days**	**Thu 29/03/18**	**Thu 12/04/18**
110		Prefabricated GLT columns	7days	Thu 29/03/18	Mon 09/04/18
111		CLT 2-way panels	3days	Mon 09/04/18	Thu 12/04/18
112		**Mass Timber Frame c/w columns to Level 08, flat-plate slab to Level 09**	**10days**	**Thu 12/04/18**	**Thu 26/04/18**
113		Prefabricated GLT columns	7days	Thu 12/04/18	Mon 23/04/18
114		CLT 2-way panels	3days	Mon 23/04/18	Thu 26/04/18
115		**Mass Timber Frame c/w columns to Level 09, flat-plate slab to Level 10**	**10days**	**Thu 26/04/18**	**Thu 10/05/18**
116		Prefabricated GLT columns	7days	Thu 26/04/18	Mon 07/05/18
117		CLT 2-way panels	3days	Mon 07/05/18	Thu 10/05/18
118		**Mass Timber Frame c/w columns to Level 10, flat-plate slab to Level 11**	**10days**	**Thu 10/05/18**	**Thu 24/05/18**
119		Prefabricated GLT columns	7days	Thu 10/05/18	Mon 21/05/18
120		CLT 2-way panels	3days	Mon 21/05/18	Thu 24/05/18
121		**Mass Timber Frame c/w columns to Level 11, flat-plate slab to Level 12**	**10days**	**Thu 24/05/18**	**Thu 07/06/18**

ID	Task Mode	Task Name	Rounded Duration	Start	Finish
122		Prefabricated GLT columns	7days	Thu 24/05/18	Mon 04/06/18
123		CLT 2-way panels	3days	Mon 04/06/18	Thu 07/06/18
124		**Mass Timber Frame c/w columns to Level 12, flat-plate slab to Roof**	**10days**	**Thu 07/06/18**	**Thu 21/06/18**
125		Prefabricated GLT columns	7days	Thu 07/06/18	Mon 18/06/18
126		CLT 2-way panels	3days	Mon 18/06/18	Thu 21/06/18
127		**A3 Exterior Enclosure**	**161.3days**	**Thu 15/02/18**	**Mon 01/10/18**
128		**A32 Walls Above Grade**	**91.6days**	**Thu 15/02/18**	**Mon 25/06/18**
129		Level 01. Double glazed curtain wall assembly	41.5days	Thu 15/02/18	Mon 16/04/18
130		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**7.6days**	**Thu 15/02/18**	**Tue 27/02/18**
131		EW-1, EW-2 to Level 02	4days	Thu 15/02/18	Wed 21/02/18
132		Vapour barrier	3days	Fri 16/02/18	Wed 21/02/18
133		16 mm GWB wall board	5.6days	Mon 19/02/18	Tue 27/02/18
134		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**7.6days**	**Wed 21/02/18**	**Mon 05/03/18**
135		EW-1, EW-2 to Level 03	4days	Wed 21/02/18	Tue 27/02/18
136		Vapour barrier	3days	Thu 22/02/18	Tue 27/02/18
137		16 mm GWB wall board	5.6days	Fri 23/02/18	Mon 05/03/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**7.6days**	**Tue 27/02/18**	**Fri 09/03/18**
139		EW-1, EW-2 to Level 04	4days	Tue 27/02/18	Mon 05/03/18
140		Vapour barrier	3days	Wed 28/02/18	Mon 05/03/18
141		16 mm GWB wall board	5.6days	Thu 01/03/18	Fri 09/03/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**7.6days**	**Thu 29/03/18**	**Tue 10/04/18**
143		EW-1, EW-2 to Level 05	4days	Thu 29/03/18	Wed 04/04/18
144		Vapour barrier	3days	Fri 30/03/18	Wed 04/04/18
145		16 mm GWB wall board	5.6days	Mon 02/04/18	Tue 10/04/18

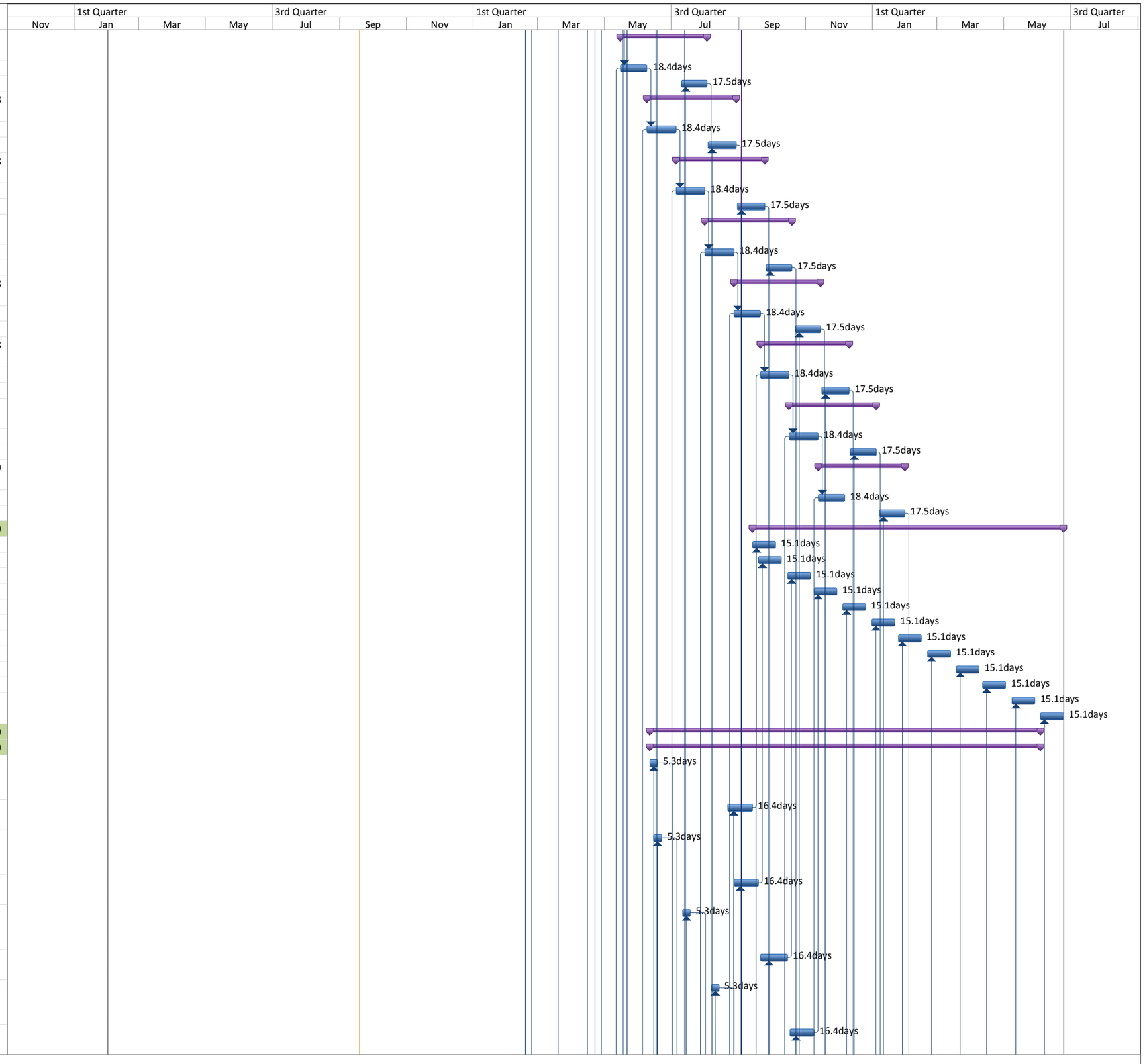
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**7.6days**	**Wed 04/04/18**	**Mon 16/04/18**
147		EW-1, EW-2 to Level 06	4days	Wed 04/04/18	Tue 10/04/18
148		Vapour barrier	3days	Thu 05/04/18	Tue 10/04/18
149		16 mm GWB wall board	5.6days	Fri 06/04/18	Mon 16/04/18
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**7.6days**	**Tue 10/04/18**	**Fri 20/04/18**
151		EW-1, EW-2 to Level 07	4days	Tue 10/04/18	Mon 16/04/18
152		Vapour barrier	3days	Wed 11/04/18	Mon 16/04/18
153		16 mm GWB wall board	5.6days	Thu 12/04/18	Fri 20/04/18
154		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**7.6days**	**Thu 10/05/18**	**Tue 22/05/18**
155		EW-1, EW-2 to Level 08	4days	Thu 10/05/18	Wed 16/05/18
156		Vapour barrier	3days	Fri 11/05/18	Wed 16/05/18
157		16 mm GWB wall board	5.6days	Mon 14/05/18	Tue 22/05/18
158		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**7.6days**	**Wed 16/05/18**	**Mon 28/05/18**
159		EW-1, EW-2 to Level 09	4days	Wed 16/05/18	Tue 22/05/18
160		Vapour barrier	3days	Thu 17/05/18	Tue 22/05/18
161		16 mm GWB wall board	5.6days	Fri 18/05/18	Mon 28/05/18
162		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**7.6days**	**Tue 22/05/18**	**Fri 01/06/18**
163		EW-1, EW-2 to Level 10	4days	Tue 22/05/18	Mon 28/05/18
164		Vapour barrier	3days	Wed 23/05/18	Mon 28/05/18
165		16 mm GWB wall board	5.6days	Thu 24/05/18	Fri 01/06/18
166		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**7.6days**	**Thu 07/06/18**	**Tue 19/06/18**
167		EW-1, EW-2 to Level 11	4days	Thu 07/06/18	Wed 13/06/18



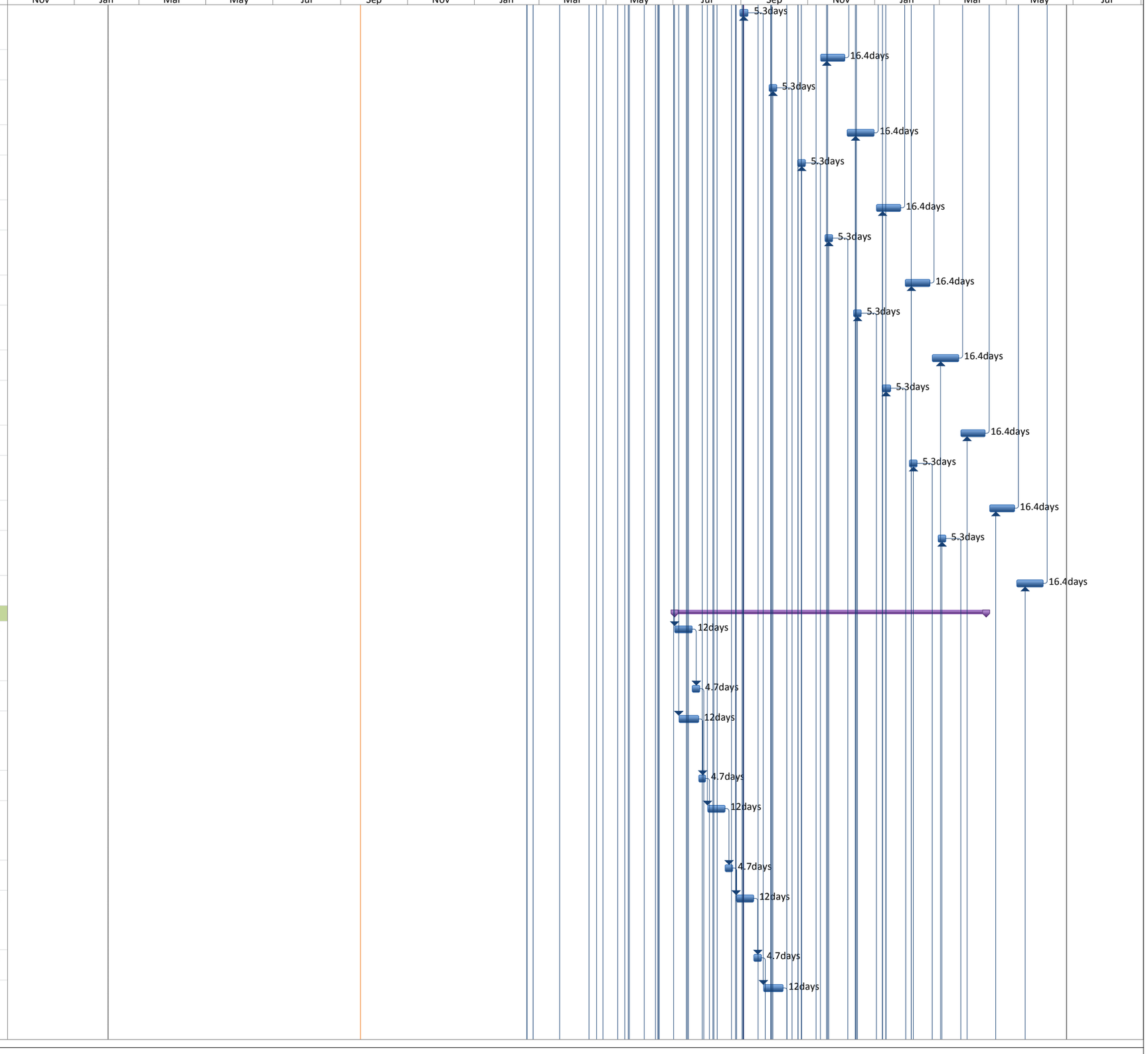
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
168		Vapour barrier	3days	Fri 08/06/18	Wed 13/06/18
169		16 mm GWB wall board	5.6days	Mon 11/06/18	Tue 19/06/18
170		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**7.6days**	**Wed 13/06/18**	**Mon 25/06/18**
171		EW-1, EW-2 to Level 12	4days	Wed 13/06/18	Tue 19/06/18
172		Vapour barrier	3days	Thu 14/06/18	Tue 19/06/18
173		16 mm GWB wall board	5.6days	Fri 15/06/18	Mon 25/06/18
174		**A33 Windows and entrancies**	**18days**	**Mon 16/04/18**	**Thu 10/05/18**
175		Glazed vestibule door c/w frame, standard hardware	6.8days	Mon 16/04/18	Tue 24/04/18
176		Exterior metal doors c/w frame and hardware	11.2days	Tue 24/04/18	Thu 10/05/18
177		**A34 Roof Coverings**	**47days**	**Thu 21/06/18**	**Mon 27/08/18**
178		Hardscape. Precast concrete pavers	24.1days	Thu 21/06/18	Wed 25/07/18
179		**Modified bituminous membrane**	**47days**	**Thu 21/06/18**	**Mon 27/08/18**
180		6 mm vapour barrier	10days	Thu 21/06/18	Thu 05/07/18
181		150 mm rigid insulation	23.1days	Fri 22/06/18	Wed 25/07/18
182		12 mm plywood	10.8days	Tue 10/07/18	Wed 25/07/18
183		Bituminous membrane base layer	17.6days	Mon 23/07/18	Wed 15/08/18
184		Bituminous membrane finish layer	17.6days	Thu 02/08/18	Mon 27/08/18
185		**A35 Projections**	**0days**	**Mon 01/10/18**	**Mon 01/10/18**
186		All projections included in relative sections	0days	Mon 01/10/18	Mon 01/10/18
187		**B1 Partitions and Doors**	**348.1days**	**Wed 21/02/18**	**Mon 24/06/19**
188		**B11 Partitions**	**245days**	**Wed 21/02/18**	**Wed 30/01/19**
189		**GWB partitions to Level 01**	**57.5days**	**Wed 21/02/18**	**Mon 14/05/18**
190		Metal studs	18.4days	Wed 21/02/18	Tue 20/03/18
191		GWB	17.5days	Wed 18/04/18	Mon 14/05/18
192		**GWB partitions to Level 02**	**57.5days**	**Tue 27/02/18**	**Thu 17/05/18**
193		Metal studs	18.4days	Tue 27/02/18	Fri 23/03/18
194		GWB	17.5days	Tue 24/04/18	Thu 17/05/18
195		**GWB partitions to Level 03**	**57.5days**	**Fri 23/03/18**	**Wed 13/06/18**
196		Metal studs	18.4days	Fri 23/03/18	Thu 19/04/18
197		GWB	17.5days	Fri 18/05/18	Wed 13/06/18
198		**GWB partitions to Level 04**	**57.5days**	**Thu 19/04/18**	**Mon 09/07/18**
199		Metal studs	18.4days	Thu 19/04/18	Tue 15/05/18
200		GWB	17.5days	Thu 14/06/18	Mon 09/07/18



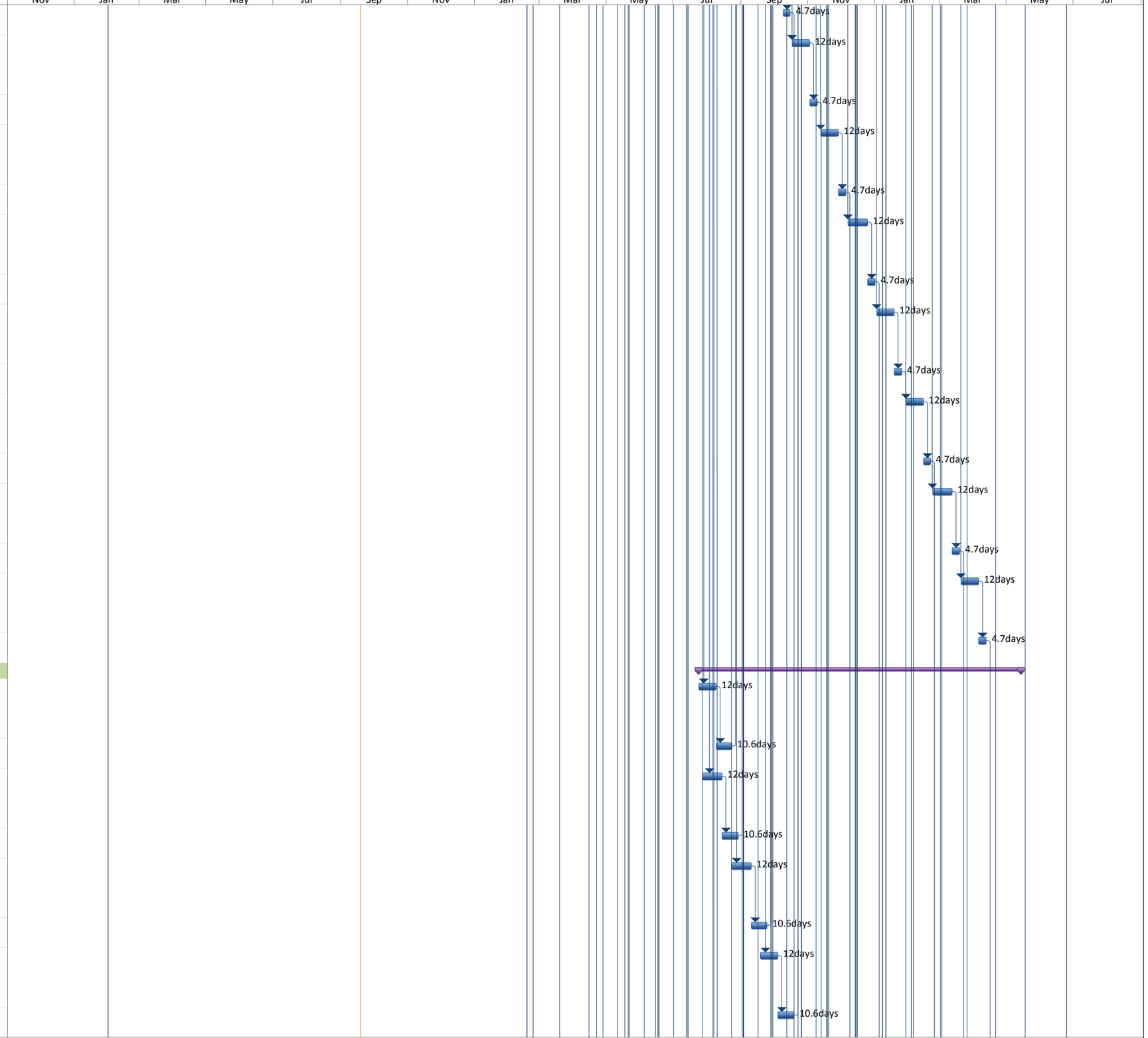
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
201		**GWB partitions to Level 05**	**57.5days**	**Tue 15/05/18**	**Thu 02/08/18**
202		Metal studs	18.4days	Tue 15/05/18	Fri 08/06/18
203		GWB	17.5days	Tue 10/07/18	Thu 02/08/18
204		**GWB partitions to Level 06**	**57.5days**	**Fri 08/06/18**	**Wed 29/08/18**
205		Metal studs	18.4days	Fri 08/06/18	Thu 05/07/18
206		GWB	17.5days	Fri 03/08/18	Wed 29/08/18
207		**GWB partitions to Level 07**	**57.5days**	**Thu 05/07/18**	**Mon 24/09/18**
208		Metal studs	18.4days	Thu 05/07/18	Tue 31/07/18
209		GWB	17.5days	Thu 30/08/18	Mon 24/09/18
210		**GWB partitions to Level 08**	**57.5days**	**Tue 31/07/18**	**Fri 19/10/18**
211		Metal studs	18.4days	Tue 31/07/18	Mon 27/08/18
212		GWB	17.5days	Tue 25/09/18	Fri 19/10/18
213		**GWB partitions to Level 09**	**57.5days**	**Mon 27/08/18**	**Wed 14/11/18**
214		Metal studs	18.4days	Mon 27/08/18	Thu 20/09/18
215		GWB	17.5days	Mon 22/10/18	Wed 14/11/18
216		**GWB partitions to Level 10**	**57.5days**	**Thu 20/09/18**	**Mon 10/12/18**
217		Metal studs	18.4days	Thu 20/09/18	Tue 16/10/18
218		GWB	17.5days	Thu 15/11/18	Mon 10/12/18
219		**GWB partitions to Level 11**	**57.5days**	**Tue 16/10/18**	**Fri 04/01/19**
220		Metal studs	18.4days	Tue 16/10/18	Mon 12/11/18
221		GWB	17.5days	Tue 11/12/18	Fri 04/01/19
222		**GWB partitions to Level 12**	**57.5days**	**Mon 12/11/18**	**Wed 30/01/19**
223		Metal studs	18.4days	Mon 12/11/18	Thu 06/12/18
224		GWB	17.5days	Mon 07/01/19	Wed 30/01/19
225		**B12 Doors**	**202.7days**	**Thu 13/09/18**	**Mon 24/06/19**
226		Doors to Level 01	15.1days	Thu 13/09/18	Thu 04/10/18
227		Doors to Level 02	15.1days	Tue 18/09/18	Tue 09/10/18
228		Doors to Level 03	15.1days	Mon 15/10/18	Mon 05/11/18
229		Doors to Level 04	15.1days	Thu 08/11/18	Thu 29/11/18
230		Doors to Level 05	15.1days	Tue 04/12/18	Tue 25/12/18
231		Doors to Level 06	15.1days	Mon 31/12/18	Mon 21/01/19
232		Doors to Level 07	15.1days	Thu 24/01/19	Thu 14/02/19
233		Doors to Level 08	15.1days	Wed 20/02/19	Wed 13/03/19
234		Doors to Level 09	15.1days	Mon 18/03/19	Mon 08/04/19
235		Doors to Level 10	15.1days	Thu 11/04/19	Thu 02/05/19
236		Doors to Level 11	15.1days	Wed 08/05/19	Wed 29/05/19
237		Doors to Level 12	15.1days	Mon 03/06/19	Mon 24/06/19
238		**B2 Finishes**	**255.5days**	**Mon 11/06/18**	**Mon 03/06/19**
239		**B21 Floor Finishes**	**255.5days**	**Mon 11/06/18**	**Mon 03/06/19**
240		50mm concrete topping to Level 01	5.3days	Mon 11/06/18	Mon 18/06/18
241		Floor finishes to Level 01	16.4days	Tue 21/08/18	Thu 13/09/18
242		50mm concrete topping to Level 02	5.3days	Thu 14/06/18	Fri 22/06/18
243		Floor finishes to Level 02	16.4days	Mon 27/08/18	Tue 18/09/18
244		50mm concrete topping to Level 03	5.3days	Wed 11/07/18	Wed 18/07/18
245		Floor finishes to Level 03	16.4days	Thu 20/09/18	Mon 15/10/18
246		50mm concrete topping to Level 04	5.3days	Mon 06/08/18	Mon 13/08/18
247		Floor finishes to Level 04	16.4days	Wed 17/10/18	Thu 08/11/18



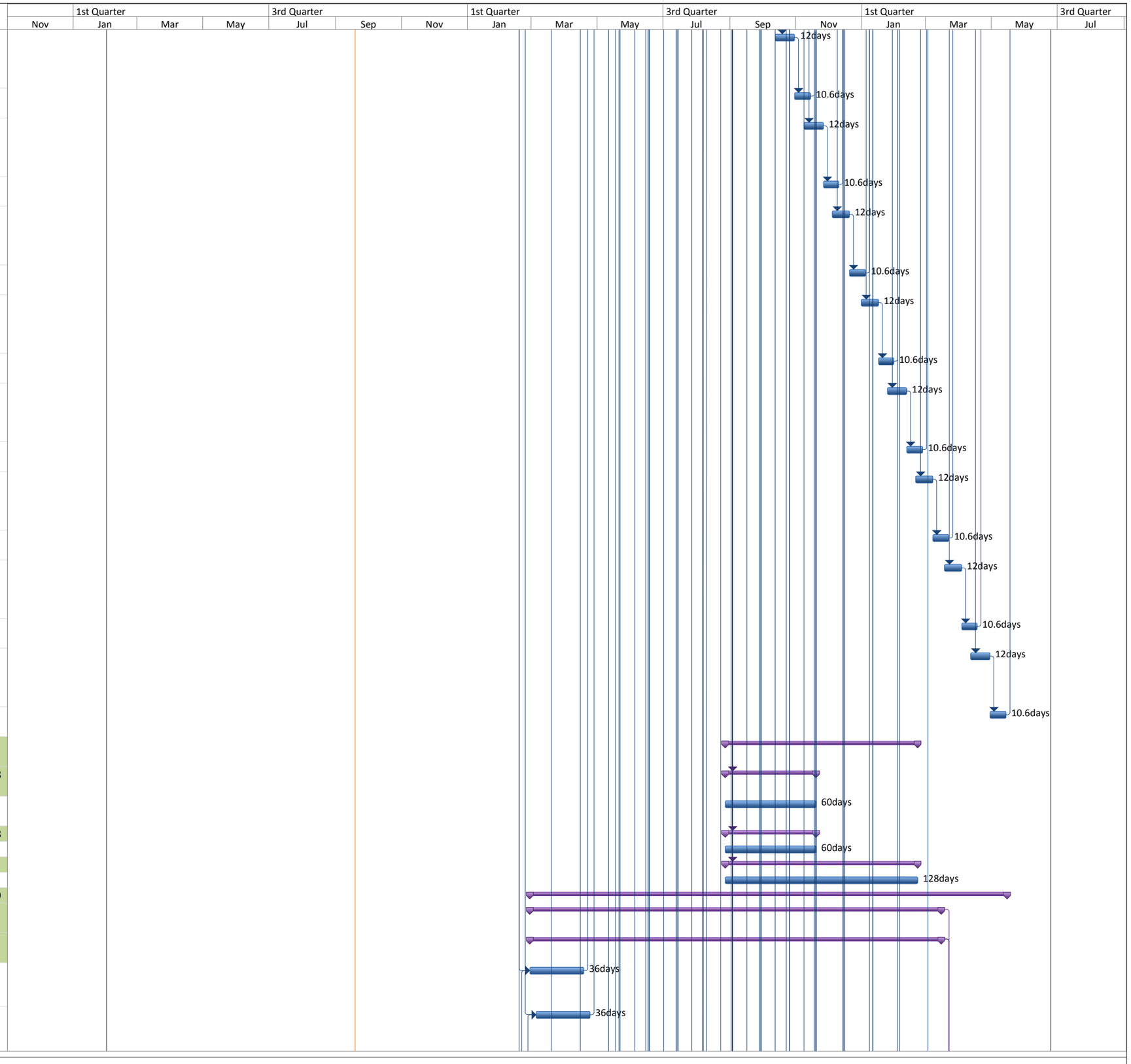
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
248		50mm concrete topping to Level 05	5.3days	Thu 30/08/18	Fri 07/09/18
249		Floor finishes to Level 05	16.4days	Mon 12/11/18	Tue 04/12/18
250		50mm concrete topping to Level 06	5.3days	Wed 26/09/18	Wed 03/10/18
251		Floor finishes to Level 06	16.4days	Thu 06/12/18	Mon 31/12/18
252		50mm concrete topping to Level 07	5.3days	Mon 22/10/18	Mon 29/10/18
253		Floor finishes to Level 07	16.4days	Wed 02/01/19	Thu 24/01/19
254		50mm concrete topping to Level 08	5.3days	Fri 16/11/18	Fri 23/11/18
255		Floor finishes to Level 08	16.4days	Mon 28/01/19	Wed 20/02/19
256		50mm concrete topping to Level 09	5.3days	Wed 12/12/18	Wed 19/12/18
257		Floor finishes to Level 09	16.4days	Fri 22/02/19	Mon 18/03/19
258		50mm concrete topping to Level 10	5.3days	Mon 07/01/19	Tue 15/01/19
259		Floor finishes to Level 10	16.4days	Wed 20/03/19	Thu 11/04/19
260		50mm concrete topping to Level 11	5.3days	Fri 01/02/19	Fri 08/02/19
261		Floor finishes to Level 11	16.4days	Mon 15/04/19	Wed 08/05/19
262		50mm concrete topping to Level 12	5.3days	Wed 27/02/19	Wed 06/03/19
263		Floor finishes to Level 12	16.4days	Fri 10/05/19	Mon 03/06/19
264		**B22 Ceiling Finishes**	**204.3days**	**Mon 02/07/18**	**Fri 12/04/19**
265		GWB encapsulation of mass timber to Level 01	12days	Mon 02/07/18	Wed 18/07/18
266		Ceiling finishes to Level 01	4.7days	Wed 18/07/18	Wed 25/07/18
267		GWB encapsulation of mass timber to Level 02	12days	Fri 06/07/18	Tue 24/07/18
268		Ceiling finishes to Level 02	4.7days	Tue 24/07/18	Mon 30/07/18
269		GWB encapsulation of mass timber to Level 03	12days	Wed 01/08/18	Fri 17/08/18
270		Ceiling finishes to Level 03	4.7days	Fri 17/08/18	Fri 24/08/18
271		GWB encapsulation of mass timber to Level 04	12days	Mon 27/08/18	Wed 12/09/18
272		Ceiling finishes to Level 04	4.7days	Wed 12/09/18	Wed 19/09/18
273		GWB encapsulation of mass timber to Level 05	12days	Fri 21/09/18	Tue 09/10/18



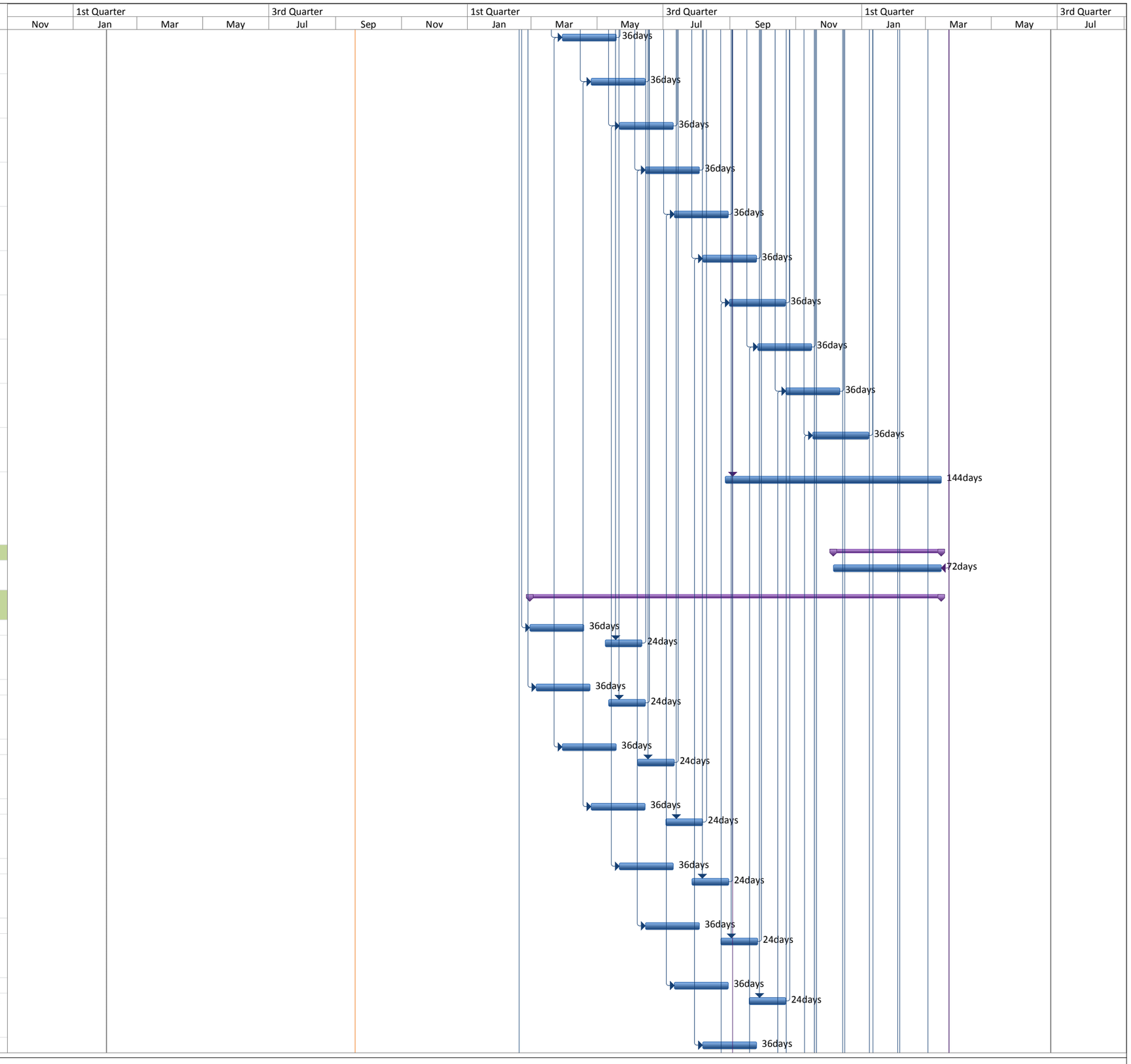
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
274		Ceiling finishes to Level 05	4.7days	Tue 09/10/18	Mon 15/10/18
275		GWB encapsulation of mass timber to Level 06	12days	Wed 17/10/18	Fri 02/11/18
276		Ceiling finishes to Level 06	4.7days	Fri 02/11/18	Fri 09/11/18
277		GWB encapsulation of mass timber to Level 07	12days	Mon 12/11/18	Wed 28/11/18
278		Ceiling finishes to Level 07	4.7days	Wed 28/11/18	Wed 05/12/18
279		GWB encapsulation of mass timber to Level 08	12days	Fri 07/12/18	Tue 25/12/18
280		Ceiling finishes to Level 08	4.7days	Tue 25/12/18	Tue 01/01/19
281		GWB encapsulation of mass timber to Level 09	12days	Wed 02/01/19	Fri 18/01/19
282		Ceiling finishes to Level 09	4.7days	Fri 18/01/19	Fri 25/01/19
283		GWB encapsulation of mass timber to Level 10	12days	Tue 29/01/19	Thu 14/02/19
284		Ceiling finishes to Level 10	4.7days	Thu 14/02/19	Wed 20/02/19
285		GWB encapsulation of mass timber to Level 11	12days	Fri 22/02/19	Tue 12/03/19
286		Ceiling finishes to Level 11	4.7days	Tue 12/03/19	Tue 19/03/19
287		GWB encapsulation of mass timber to Level 12	12days	Wed 20/03/19	Fri 05/04/19
288		Ceiling finishes to Level 12	4.7days	Fri 05/04/19	Fri 12/04/19
289		**B23 Wall Finishes**	**210.1days**	**Tue 24/07/18**	**Tue 14/05/19**
290		GWB encapsulation of mass timber to Level 01	12days	Tue 24/07/18	Thu 09/08/18
291		Wall finishes to Level 01	10.6days	Thu 09/08/18	Thu 23/08/18
292		GWB encapsulation of mass timber to Level 02	12days	Fri 27/07/18	Tue 14/08/18
293		Wall finishes to Level 02	10.6days	Tue 14/08/18	Wed 29/08/18
294		GWB encapsulation of mass timber to Level 03	12days	Thu 23/08/18	Mon 10/09/18
295		Wall finishes to Level 03	10.6days	Mon 10/09/18	Mon 24/09/18
296		GWB encapsulation of mass timber to Level 04	12days	Tue 18/09/18	Thu 04/10/18
297		Wall finishes to Level 04	10.6days	Thu 04/10/18	Fri 19/10/18



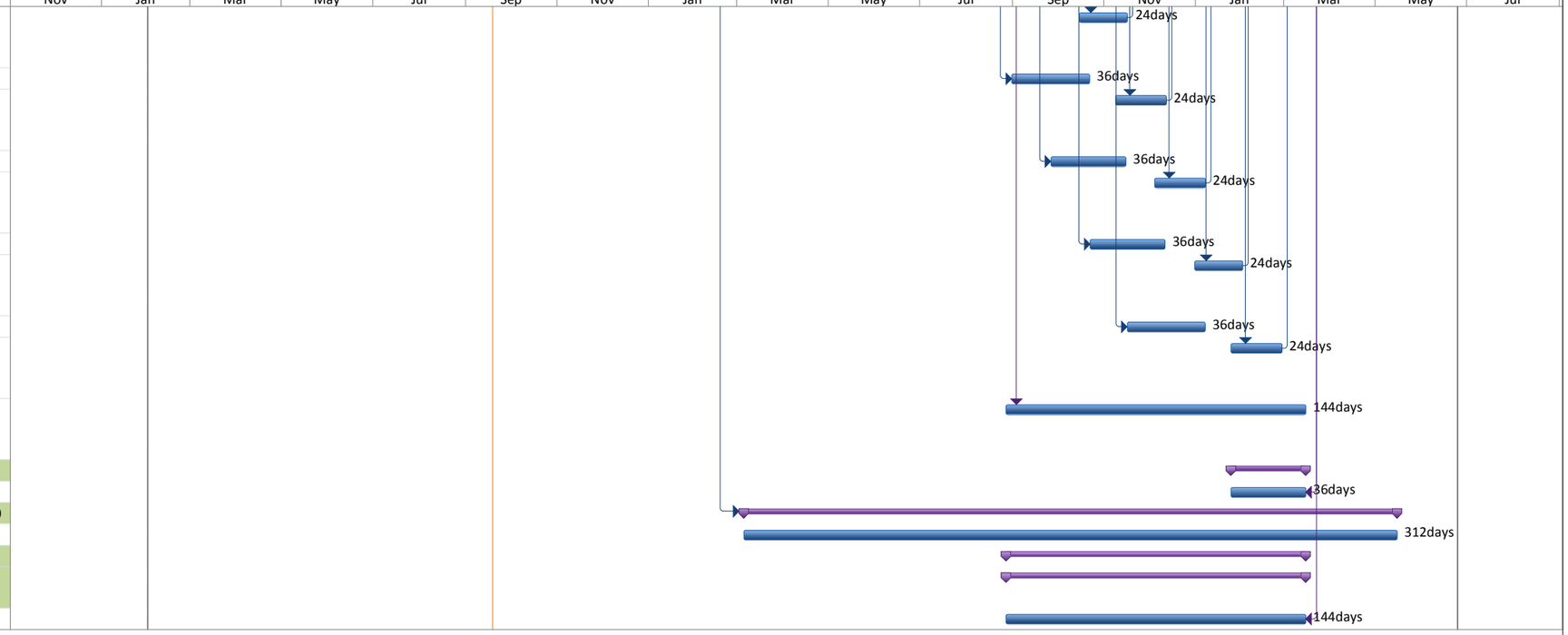
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
298		GWB encapsulation of mass timber to Level 05	12days	Fri 12/10/18	Tue 30/10/18
299		Wall finishes to Level 05	10.6days	Tue 30/10/18	Wed 14/11/18
300		GWB encapsulation of mass timber to Level 06	12days	Thu 08/11/18	Mon 26/11/18
301		Wall finishes to Level 06	10.6days	Mon 26/11/18	Mon 10/12/18
302		GWB encapsulation of mass timber to Level 07	12days	Tue 04/12/18	Thu 20/12/18
303		Wall finishes to Level 07	10.6days	Thu 20/12/18	Fri 04/01/19
304		GWB encapsulation of mass timber to Level 08	12days	Mon 31/12/18	Wed 16/01/19
305		Wall finishes to Level 08	10.6days	Wed 16/01/19	Wed 30/01/19
306		GWB encapsulation of mass timber to Level 09	12days	Thu 24/01/19	Mon 11/02/19
307		Wall finishes to Level 09	10.6days	Mon 11/02/19	Tue 26/02/19
308		GWB encapsulation of mass timber to Level 10	12days	Tue 19/02/19	Thu 07/03/19
309		Wall finishes to Level 10	10.6days	Thu 07/03/19	Fri 22/03/19
310		GWB encapsulation of mass timber to Level 11	12days	Mon 18/03/19	Wed 03/04/19
311		Wall finishes to Level 11	10.6days	Wed 03/04/19	Wed 17/04/19
312		GWB encapsulation of mass timber to Level 12	12days	Thu 11/04/19	Mon 29/04/19
313		Wall finishes to Level 12	10.6days	Mon 29/04/19	Tue 14/05/19
314		**B3 Fittings and Equipment**	**128days**	**Mon 27/08/18**	**Thu 21/02/19**
315		**B31 Fittings and Fixtures**	**60days**	**Mon 27/08/18**	**Mon 19/11/18**
316		Fittings and Fixtures	60days	Mon 27/08/18	Mon 19/11/18
317		**B32 Equipment**	**60days**	**Mon 27/08/18**	**Mon 19/11/18**
318		Equipment	60days	Mon 27/08/18	Mon 19/11/18
319		**B33 Elevators**	**128days**	**Mon 27/08/18**	**Thu 21/02/19**
320		Elevators	128days	Mon 27/08/18	Thu 21/02/19
321		**C. Services**	**315.8days**	**Tue 27/02/18**	**Wed 15/05/19**
322		**C1. Mechanical Services**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
323		**C11. Plumbing and Drainage**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
324		Mechanical elements to Level 01	36days	Tue 27/02/18	Wed 18/04/18
325		Mechanical elements to Level 02	36days	Mon 05/03/18	Tue 24/04/18



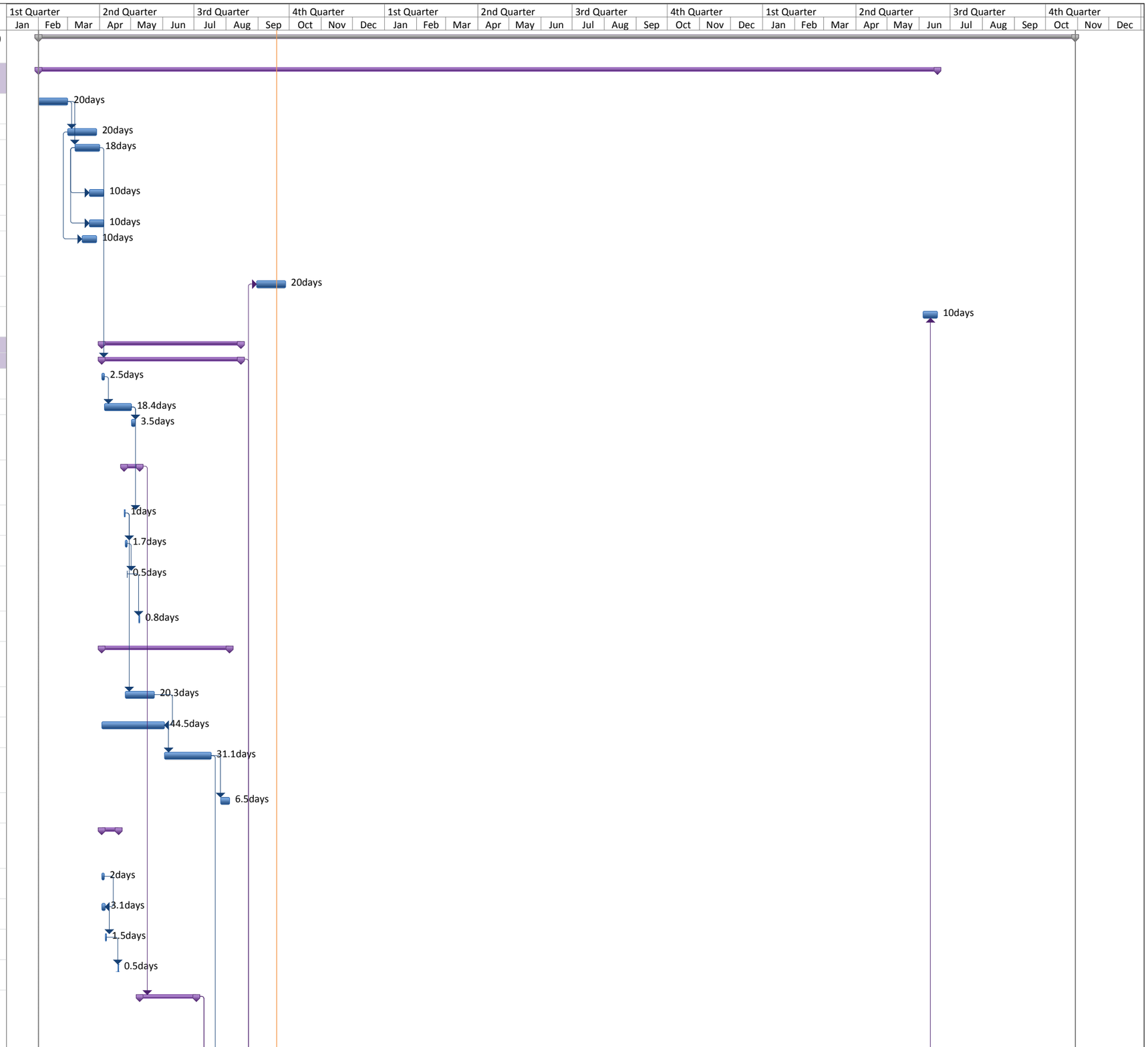
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
326		Mechanical elements to Level 03	36days	Thu 29/03/18	Fri 18/05/18
327		Mechanical elements to Level 04	36days	Wed 25/04/18	Thu 14/06/18
328		Mechanical elements to Level 05	36days	Mon 21/05/18	Tue 10/07/18
329		Mechanical elements to Level 06	36days	Thu 14/06/18	Fri 03/08/18
330		Mechanical elements to Level 07	36days	Wed 11/07/18	Thu 30/08/18
331		Mechanical elements to Level 08	36days	Mon 06/08/18	Tue 25/09/18
332		Mechanical elements to Level 09	36days	Fri 31/08/18	Mon 22/10/18
333		Mechanical elements to Level 10	36days	Wed 26/09/18	Thu 15/11/18
334		Mechanical elements to Level 11	36days	Mon 22/10/18	Tue 11/12/18
335		Mechanical elements to Level 12	36days	Fri 16/11/18	Mon 07/01/19
336		Mechanical elements other, include mechanical rooms	144days	Mon 27/08/18	Fri 15/03/19
337		**C12. Fire Protection**	**72days**	**Wed 05/12/18**	**Fri 15/03/19**
338		Fire protection services	72days	Wed 05/12/18	Fri 15/03/19
339		**C13. HVAC. Radiant floor heating.**	**273days**	**Tue 27/02/18**	**Fri 15/03/19**
340		HVAC to Level 01	36days	Tue 27/02/18	Wed 18/04/18
341		Radiant floor heating to Level 01	24days	Tue 08/05/18	Mon 11/06/18
342		HVAC to Level 02	36days	Mon 05/03/18	Tue 24/04/18
343		Radiant floor heating to Level 02	24days	Fri 11/05/18	Thu 14/06/18
344		HVAC to Level 03	36days	Thu 29/03/18	Fri 18/05/18
345		Radiant floor heating to Level 03	24days	Thu 07/06/18	Wed 11/07/18
346		HVAC to Level 04	36days	Wed 25/04/18	Thu 14/06/18
347		Radiant floor heating to Level 04	24days	Tue 03/07/18	Mon 06/08/18
348		HVAC to Level 05	36days	Mon 21/05/18	Tue 10/07/18
349		Radiant floor heating to Level 05	24days	Fri 27/07/18	Thu 30/08/18
350		HVAC to Level 06	36days	Thu 14/06/18	Fri 03/08/18
351		Radiant floor heating to Level 06	24days	Thu 23/08/18	Wed 26/09/18
352		HVAC to Level 07	36days	Wed 11/07/18	Thu 30/08/18
353		Radiant floor heating to Level 07	24days	Tue 18/09/18	Mon 22/10/18
354		HVAC to Level 08	36days	Mon 06/08/18	Tue 25/09/18



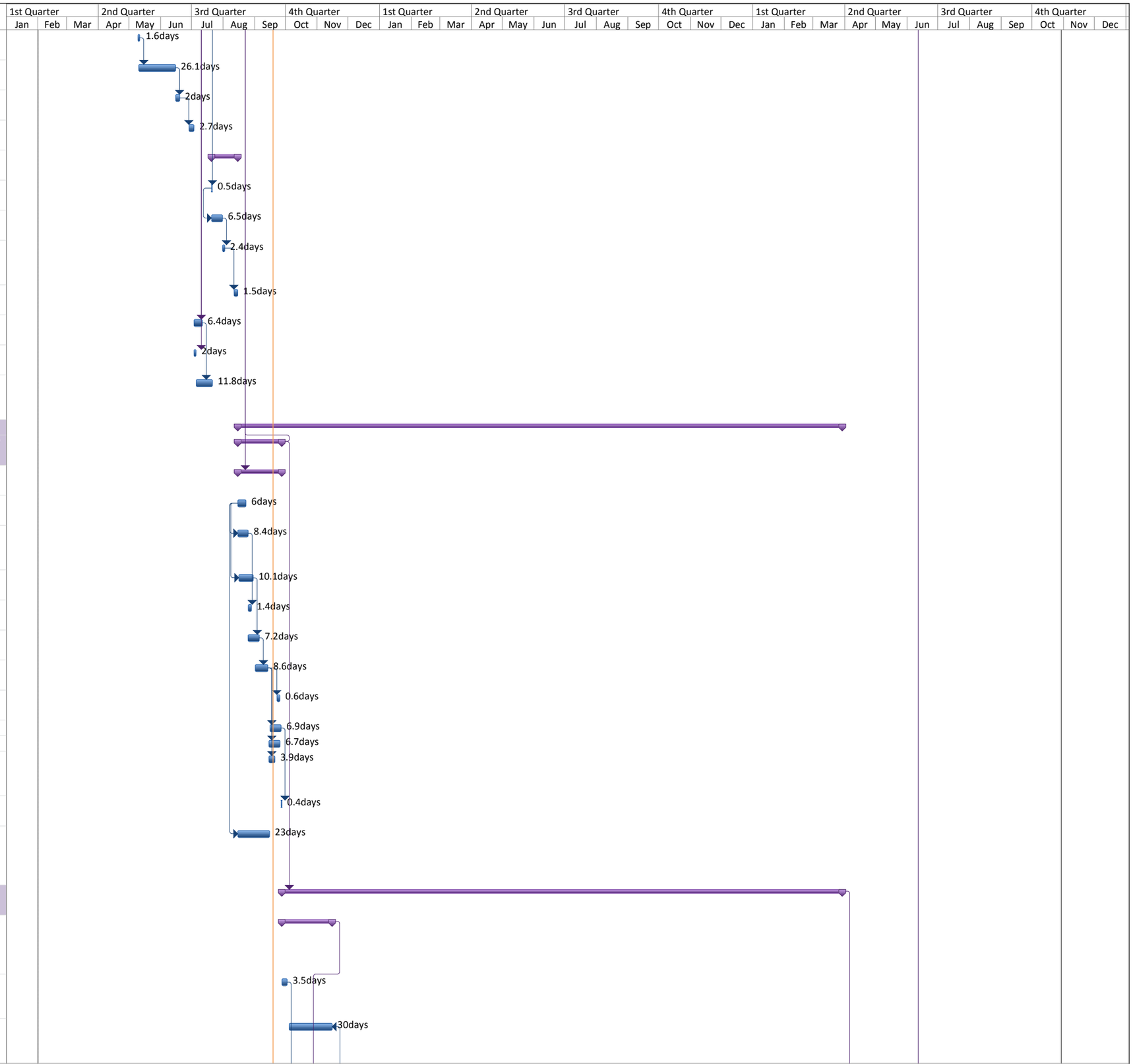
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
355		Radiant floor heating to Level 08	24days	Mon 15/10/18	Fri 16/11/18
356		HVAC to Level 09	36days	Fri 31/08/18	Mon 22/10/18
357		Radiant floor heating to Level 09	24days	Thu 08/11/18	Wed 12/12/18
358		HVAC to Level 10	36days	Wed 26/09/18	Thu 15/11/18
359		Radiant floor heating to Level 10	24days	Tue 04/12/18	Mon 07/01/19
360		HVAC to Level 11	36days	Mon 22/10/18	Tue 11/12/18
361		Radiant floor heating to Level 11	24days	Mon 31/12/18	Fri 01/02/19
362		HVAC to Level 12	36days	Fri 16/11/18	Mon 07/01/19
363		Radiant floor heating to Level 12	24days	Thu 24/01/19	Wed 27/02/19
364		Other HVAC to the rest of builduing	144days	Mon 27/08/18	Fri 15/03/19
365		**C14. Controls**	**36days**	**Thu 24/01/19**	**Fri 15/03/19**
366		DDC Controls	36days	Thu 24/01/19	Fri 15/03/19
367		**C2. Elecrtical Services**	**312days**	**Mon 05/03/18**	**Wed 15/05/19**
368		Electrical Services	312days	Mon 05/03/18	Wed 15/05/19
369		**D1. Site Work**	**144days**	**Mon 27/08/18**	**Fri 15/03/19**
370		**D11. Site Development**	**144days**	**Mon 27/08/18**	**Fri 15/03/19**
371		Site work	144days	Mon 27/08/18	Fri 15/03/19



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Standard Concrete Building - Commercial**	**714.4days**	**Wed 01/02/17**	**Tue 29/10/19**
1		**General Conditions and Management**	**619.5days**	**Wed 01/02/17**	**Tue 18/06/19**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 3 cranes	20days	Wed 30/08/17	Wed 27/09/17
9		Tower cranes dismantle - 3 cranes	10days	Tue 04/06/19	Tue 18/06/19
10		**A1 Substructure**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
11		**A11 Foundations**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
12		Clearing and grubbing	2.5days	Mon 03/04/17	Wed 05/04/17
13		Excavation	18.4days	Wed 05/04/17	Mon 01/05/17
14		Perimeter drain c/w filter socket and granular cover	3.5days	Mon 01/05/17	Fri 05/05/17
15		**Reinforced concrete strip footing**	**11days**	**Mon 24/04/17**	**Tue 09/05/17**
16		Concrete reinforcement	1days	Mon 24/04/17	Tue 25/04/17
17		Formwork to sides	1.7days	Tue 25/04/17	Thu 27/04/17
18		Concrete placing by pumps	0.5days	Thu 27/04/17	Thu 27/04/17
19		Stripping formwork	0.8days	Mon 08/05/17	Tue 09/05/17
20		**Reinforced concrete pad footing to columns**	**89.1days**	**Mon 03/04/17**	**Fri 04/08/17**
21		Concrete reinforcement	20.3days	Tue 25/04/17	Tue 23/05/17
22		Formwork to sides	44.5days	Mon 03/04/17	Fri 02/06/17
23		Concrete placing by pumps	31.1days	Fri 02/06/17	Mon 17/07/17
24		Stripping formwork	6.5days	Wed 26/07/17	Fri 04/08/17
25		**Raft slab below elevator & stair cores**	**12.1days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.5days	Thu 06/04/17	Fri 07/04/17
29		Stripping formwork	0.5days	Tue 18/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**38.4days**	**Tue 09/05/17**	**Mon 03/07/17**

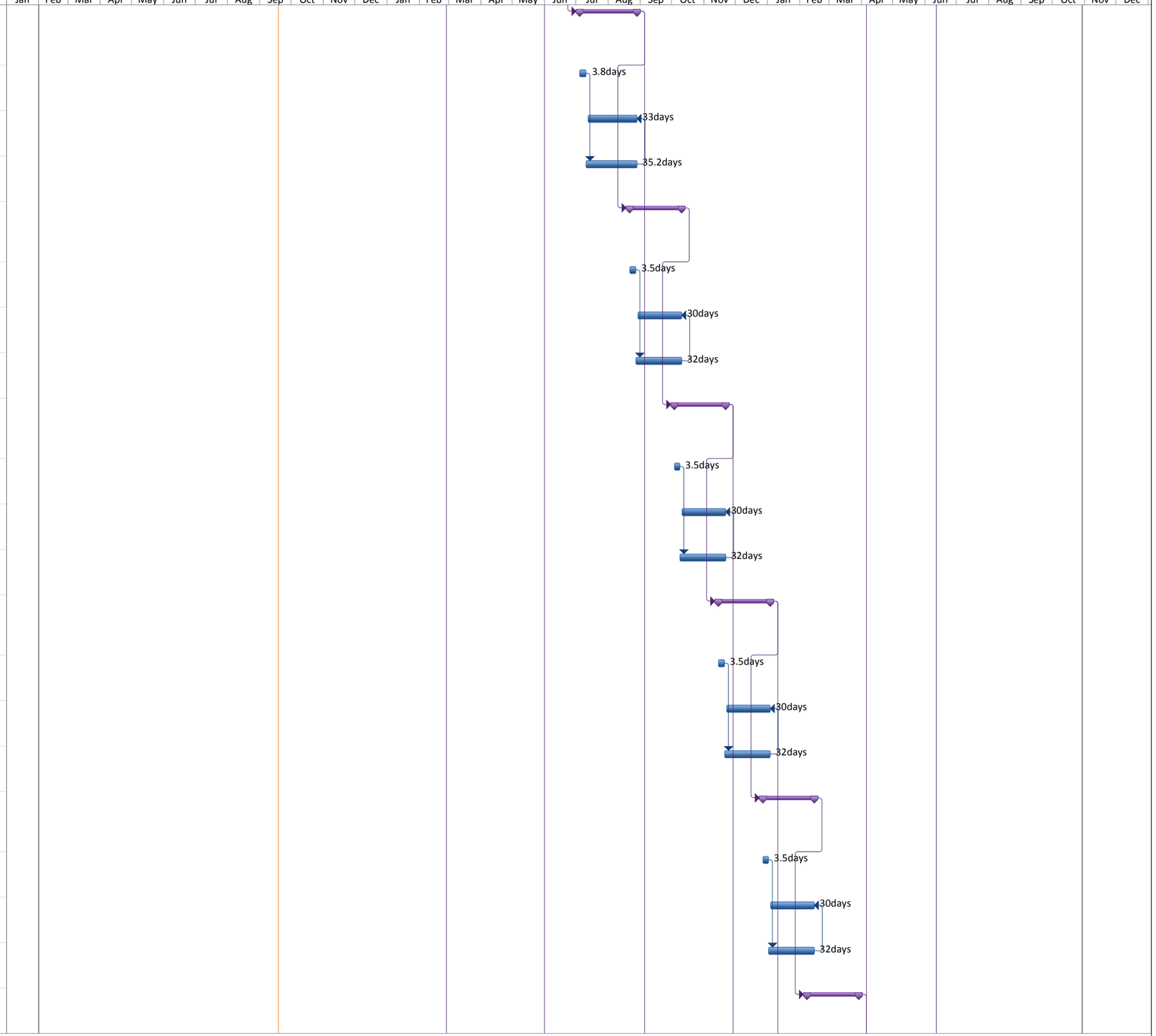


ID	Task Mode	Task Name	Rounded Duration	Start	Finish
31		Concrete reinforcement	1.6days	Tue 09/05/17	Thu 11/05/17
32		Formwork to sides	26.1days	Wed 10/05/17	Thu 15/06/17
33		Concrete placing by pump	2days	Thu 15/06/17	Mon 19/06/17
34		Stripping formwork	2.7days	Wed 28/06/17	Mon 03/07/17
35		**Piers. Reinforced concrete**	**17.4days**	**Thu 20/07/17**	**Tue 15/08/17**
36		Concrete reinforcement	0.5days	Thu 20/07/17	Fri 21/07/17
37		Formwork to sides	6.5days	Thu 20/07/17	Mon 31/07/17
38		Concrete placing by pumps	2.4days	Mon 31/07/17	Wed 02/08/17
39		Stripping formwork	1.5days	Fri 11/08/17	Tue 15/08/17
40		Extraover for dampproofing	6.4days	Mon 03/07/17	Tue 11/07/17
41		Allowance for expansion joint	2days	Mon 03/07/17	Wed 05/07/17
42		Backfill excavated area c/w compaction	11.8days	Wed 05/07/17	Fri 21/07/17
43		**A2 Structure**	**423.5days**	**Tue 15/08/17**	**Fri 29/03/19**
44		**A21 Lowest Floor Construction**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
45		**250 mm reinforced concrete slab**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
46		6 mm vapour barrier	6days	Tue 15/08/17	Wed 23/08/17
47		300 mm granular fill compacted slab	8.4days	Tue 15/08/17	Fri 25/08/17
48		75 mm rigid insulation	10.1days	Wed 16/08/17	Wed 30/08/17
49		Formwork to openings	1.4days	Fri 25/08/17	Mon 28/08/17
50		Concrete reinforcement	7.2days	Fri 25/08/17	Tue 05/09/17
51		Concrete placing by pump	8.6days	Fri 01/09/17	Wed 13/09/17
52		Stripping formwork	0.6days	Fri 22/09/17	Mon 25/09/17
53		Finishing	6.9days	Fri 15/09/17	Tue 26/09/17
54		Water curing	6.7days	Thu 14/09/17	Mon 25/09/17
55		Sheet membrane curing	3.9days	Thu 14/09/17	Wed 20/09/17
56		Sawcut control joints	0.4days	Tue 26/09/17	Wed 27/09/17
57		Civil works. General civil infrastructure allowance	23days	Tue 15/08/17	Fri 15/09/17
58		**A22 Upper Floor Construction**	**392.3days**	**Wed 27/09/17**	**Fri 29/03/19**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**35.5days**	**Wed 27/09/17**	**Wed 15/11/17**
60		Concrete columns to Level 01	3.5days	Wed 27/09/17	Mon 02/10/17
61		Concrete stair and elevators cores to Level 01	30days	Wed 04/10/17	Wed 15/11/17

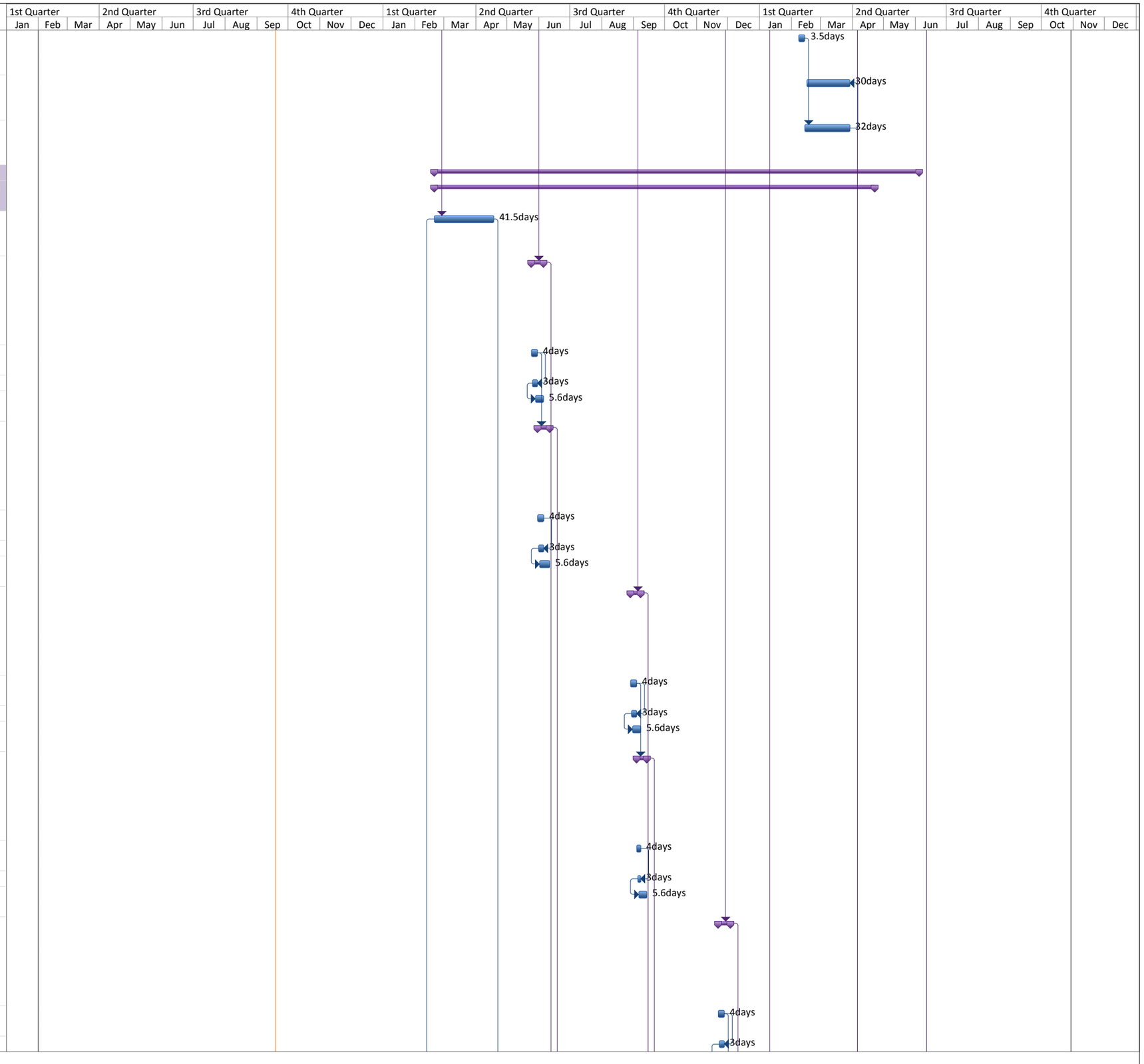


ID	Task Mode	Task Name	Rounded Duration	Start	Finish
62		Concrete suspended slab to Level 02	32days	Mon 02/10/17	Wed 15/11/17
63		**Level 02 to Level 03, include suspended slab to Level 03**	**39days**	**Wed 08/11/17**	**Tue 02/01/18**
64		Concrete columns to Level 02	3.8days	Wed 08/11/17	Tue 14/11/17
65		Concrete stair and elevators cores to Level 02	33days	Thu 16/11/17	Tue 02/01/18
66		Concrete suspended slab to Level 03	35.2days	Tue 14/11/17	Tue 02/01/18
67		**Level 03 to Level 04, include suspended slab to Level 04**	**39days**	**Tue 26/12/17**	**Mon 19/02/18**
68		Concrete columns to Level 03	3.8days	Tue 26/12/17	Mon 01/01/18
69		Concrete stair and elevators cores to Level 03	33days	Wed 03/01/18	Mon 19/02/18
70		Concrete suspended slab to Level 04	35.2days	Mon 01/01/18	Mon 19/02/18
71		**Level 04 to Level 05, include suspended slab to Level 05**	**39days**	**Mon 12/02/18**	**Fri 06/04/18**
72		Concrete columns to Level 04	3.8days	Mon 12/02/18	Fri 16/02/18
73		Concrete stair and elevators cores to Level 04	33days	Tue 20/02/18	Fri 06/04/18
74		Concrete suspended slab to Level 05	35.2days	Fri 16/02/18	Fri 06/04/18
75		**Level 05 to Level 06, include suspended slab to Level 06**	**39days**	**Fri 30/03/18**	**Thu 24/05/18**
76		Concrete columns to Level 05	3.8days	Fri 30/03/18	Thu 05/04/18
77		Concrete stair and elevators cores to Level 05	33days	Mon 09/04/18	Thu 24/05/18
78		Concrete suspended slab to Level 06	35.2days	Thu 05/04/18	Thu 24/05/18
79		**Level 06 to Level 07, include suspended slab to Level 07**	**39days**	**Thu 17/05/18**	**Wed 11/07/18**
80		Concrete columns to Level 06	3.8days	Thu 17/05/18	Wed 23/05/18
81		Concrete stair and elevators cores to Level 06	33days	Fri 25/05/18	Wed 11/07/18
82		Concrete suspended slab to Level 07	35.2days	Wed 23/05/18	Wed 11/07/18

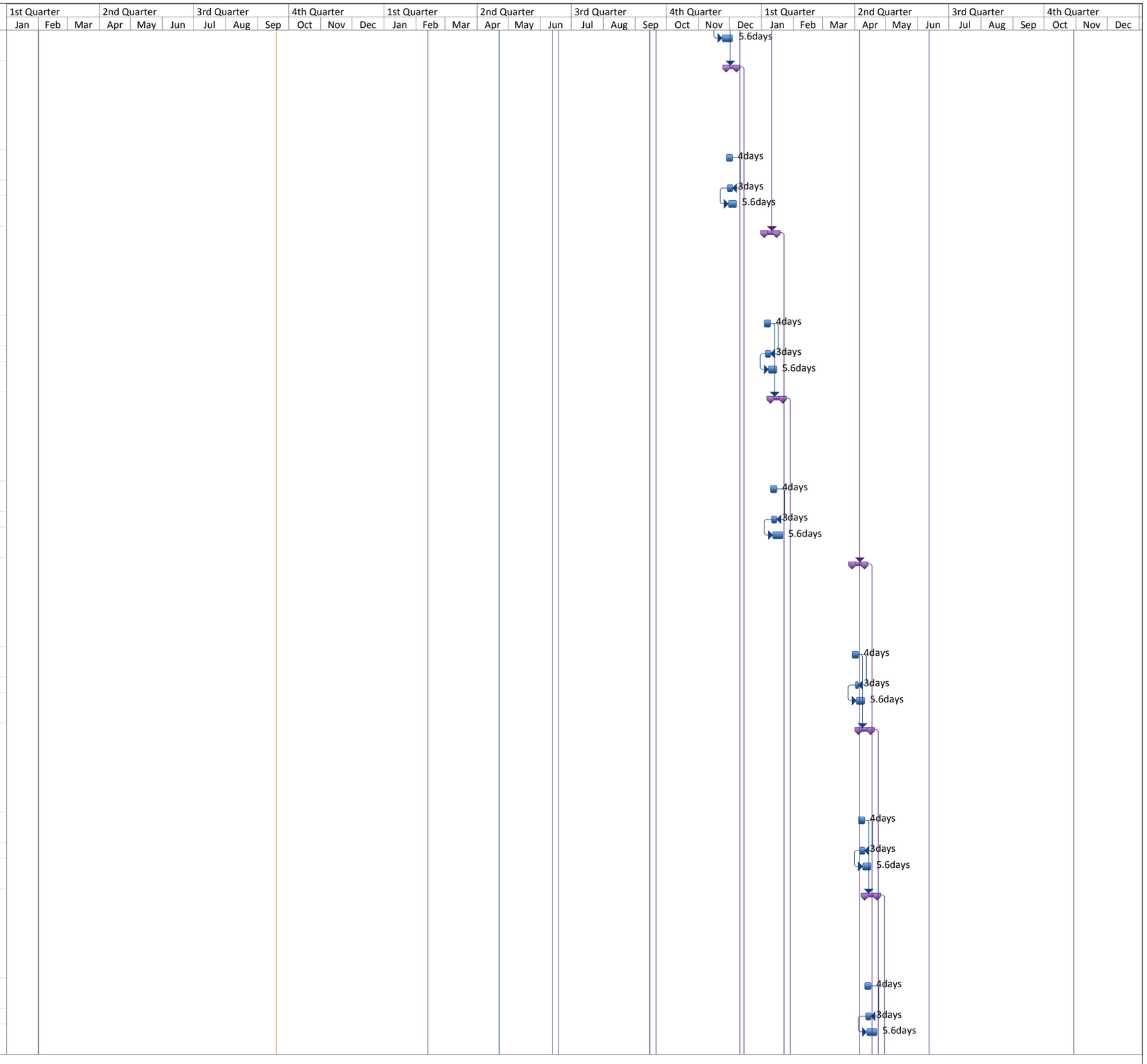
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
83		**Level 07 to Level 08, include suspended slab to Level 08**	**39days**	**Wed 04/07/18**	**Tue 28/08/18**
84		Concrete columns to Level 07	3.8days	Wed 04/07/18	Tue 10/07/18
85		Concrete stair and elevators cores to Level 07	33days	Thu 12/07/18	Tue 28/08/18
86		Concrete suspended slab to Level 08	35.2days	Tue 10/07/18	Tue 28/08/18
87		**Level 08 to Level 09, include suspended slab to Level 09**	**35.5days**	**Tue 21/08/18**	**Wed 10/10/18**
88		Concrete columns to Level 08	3.5days	Tue 21/08/18	Mon 27/08/18
89		Concrete stair and elevators cores to Level 08	30days	Wed 29/08/18	Wed 10/10/18
90		Concrete suspended slab to Level 09	32days	Mon 27/08/18	Wed 10/10/18
91		**Level 09 to Level 10, include suspended slab to Level 10**	**35.5days**	**Wed 03/10/18**	**Wed 21/11/18**
92		Concrete columns to Level 09	3.5days	Wed 03/10/18	Mon 08/10/18
93		Concrete stair and elevators cores to Level 09	30days	Wed 10/10/18	Wed 21/11/18
94		Concrete suspended slab to Level 10	32days	Mon 08/10/18	Wed 21/11/18
95		**Level 10 to Level 11, include suspended slab to Level 11**	**35.5days**	**Wed 14/11/18**	**Thu 03/01/19**
96		Concrete columns to Level 10	3.5days	Wed 14/11/18	Tue 20/11/18
97		Concrete stair and elevators cores to Level 10	30days	Thu 22/11/18	Thu 03/01/19
98		Concrete suspended slab to Level 11	32days	Tue 20/11/18	Thu 03/01/19
99		**Level 11 to Level 12, include suspended slab to Level 12**	**35.5days**	**Thu 27/12/18**	**Thu 14/02/19**
100		Concrete columns to Level 11	3.5days	Thu 27/12/18	Tue 01/01/19
101		Concrete stair and elevators cores to Level 11	30days	Thu 03/01/19	Thu 14/02/19
102		Concrete suspended slab to Level 12	32days	Tue 01/01/19	Thu 14/02/19
103		**Level 12 to Roof, include suspended slab to Roof**	**35.5days**	**Thu 07/02/19**	**Fri 29/03/19**



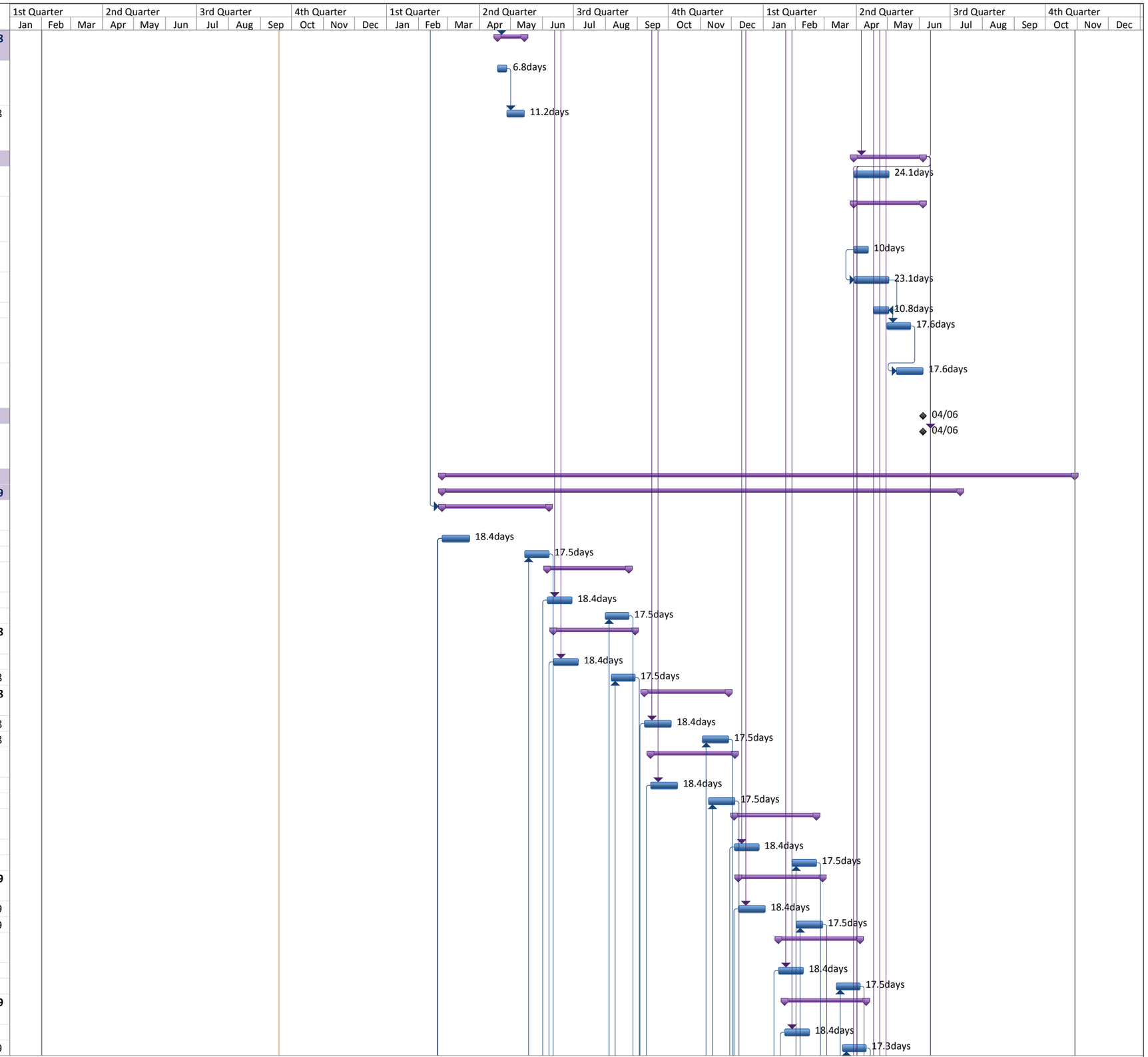
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
104		Concrete columns to Level 12	3.5days	Thu 07/02/19	Wed 13/02/19
105		Concrete stair and elevators cores to Level 12	30days	Fri 15/02/19	Fri 29/03/19
106		Concrete suspended slab to Roof	32days	Wed 13/02/19	Fri 29/03/19
107		**A3 Exterior Enclosure**	**335.7days**	**Mon 19/02/18**	**Tue 04/06/19**
108		**A32 Walls Above Grade**	**304.3days**	**Mon 19/02/18**	**Mon 22/04/19**
109		Level 01. Double glazed curtain wall assembly	41.5days	Mon 19/02/18	Wed 18/04/18
110		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**7.6days**	**Thu 24/05/18**	**Tue 05/06/18**
111		EW-1, EW-2 to Level 02	4days	Thu 24/05/18	Wed 30/05/18
112		Vapour barrier	3days	Fri 25/05/18	Wed 30/05/18
113		16 mm GWB wall board	5.6days	Mon 28/05/18	Tue 05/06/18
114		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**7.6days**	**Wed 30/05/18**	**Mon 11/06/18**
115		EW-1, EW-2 to Level 03	4days	Wed 30/05/18	Tue 05/06/18
116		Vapour barrier	3days	Thu 31/05/18	Tue 05/06/18
117		16 mm GWB wall board	5.6days	Fri 01/06/18	Mon 11/06/18
118		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**7.6days**	**Tue 28/08/18**	**Fri 07/09/18**
119		EW-1, EW-2 to Level 04	4days	Tue 28/08/18	Mon 03/09/18
120		Vapour barrier	3days	Wed 29/08/18	Mon 03/09/18
121		16 mm GWB wall board	5.6days	Thu 30/08/18	Fri 07/09/18
122		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**7.6days**	**Mon 03/09/18**	**Thu 13/09/18**
123		EW-1, EW-2 to Level 05	4days	Mon 03/09/18	Fri 07/09/18
124		Vapour barrier	3days	Tue 04/09/18	Fri 07/09/18
125		16 mm GWB wall board	5.6days	Wed 05/09/18	Thu 13/09/18
126		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**7.6days**	**Wed 21/11/18**	**Mon 03/12/18**
127		EW-1, EW-2 to Level 06	4days	Wed 21/11/18	Tue 27/11/18
128		Vapour barrier	3days	Thu 22/11/18	Tue 27/11/18



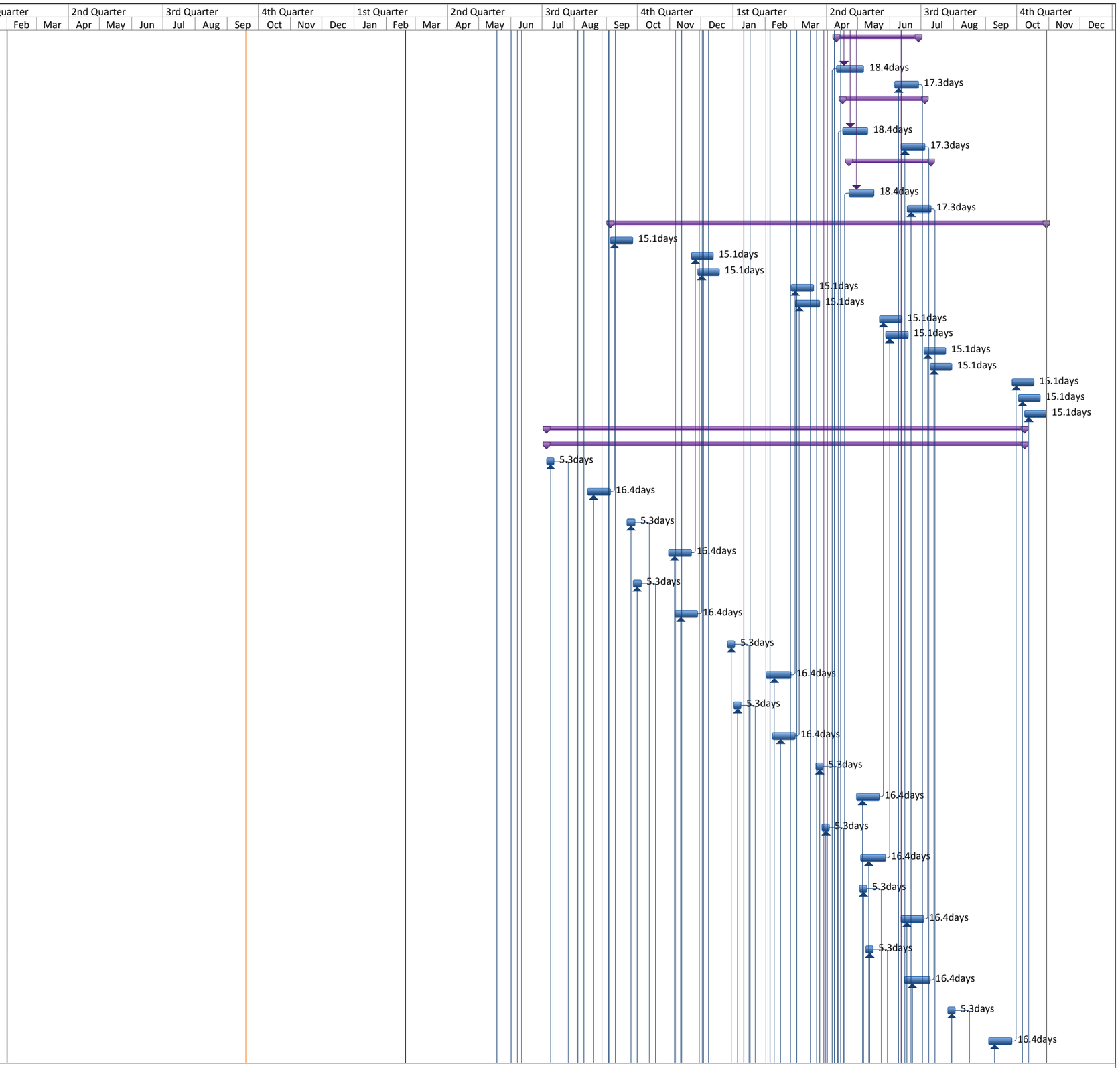
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
129		16 mm GWB wall board	5.6days	Fri 23/11/18	Mon 03/12/18
130		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**7.6days**	**Tue 27/11/18**	**Fri 07/12/18**
131		EW-1, EW-2 to Level 07	4days	Tue 27/11/18	Mon 03/12/18
132		Vapour barrier	3days	Wed 28/11/18	Mon 03/12/18
133		16 mm GWB wall board	5.6days	Thu 29/11/18	Fri 07/12/18
134		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**7.6days**	**Thu 03/01/19**	**Tue 15/01/19**
135		EW-1, EW-2 to Level 08	4days	Thu 03/01/19	Wed 09/01/19
136		Vapour barrier	3days	Fri 04/01/19	Wed 09/01/19
137		16 mm GWB wall board	5.6days	Mon 07/01/19	Tue 15/01/19
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**7.6days**	**Wed 09/01/19**	**Mon 21/01/19**
139		EW-1, EW-2 to Level 09	4days	Wed 09/01/19	Tue 15/01/19
140		Vapour barrier	3days	Thu 10/01/19	Tue 15/01/19
141		16 mm GWB wall board	5.6days	Fri 11/01/19	Mon 21/01/19
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**7.6days**	**Fri 29/03/19**	**Wed 10/04/19**
143		EW-1, EW-2 to Level 10	4days	Fri 29/03/19	Thu 04/04/19
144		Vapour barrier	3days	Mon 01/04/19	Thu 04/04/19
145		16 mm GWB wall board	5.6days	Tue 02/04/19	Wed 10/04/19
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**7.6days**	**Thu 04/04/19**	**Tue 16/04/19**
147		EW-1, EW-2 to Level 11	4days	Thu 04/04/19	Wed 10/04/19
148		Vapour barrier	3days	Fri 05/04/19	Wed 10/04/19
149		16 mm GWB wall board	5.6days	Mon 08/04/19	Tue 16/04/19
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**7.6days**	**Wed 10/04/19**	**Mon 22/04/19**
151		EW-1, EW-2 to Level 12	4days	Wed 10/04/19	Tue 16/04/19
152		Vapour barrier	3days	Thu 11/04/19	Tue 16/04/19
153		16 mm GWB wall board	5.6days	Fri 12/04/19	Mon 22/04/19



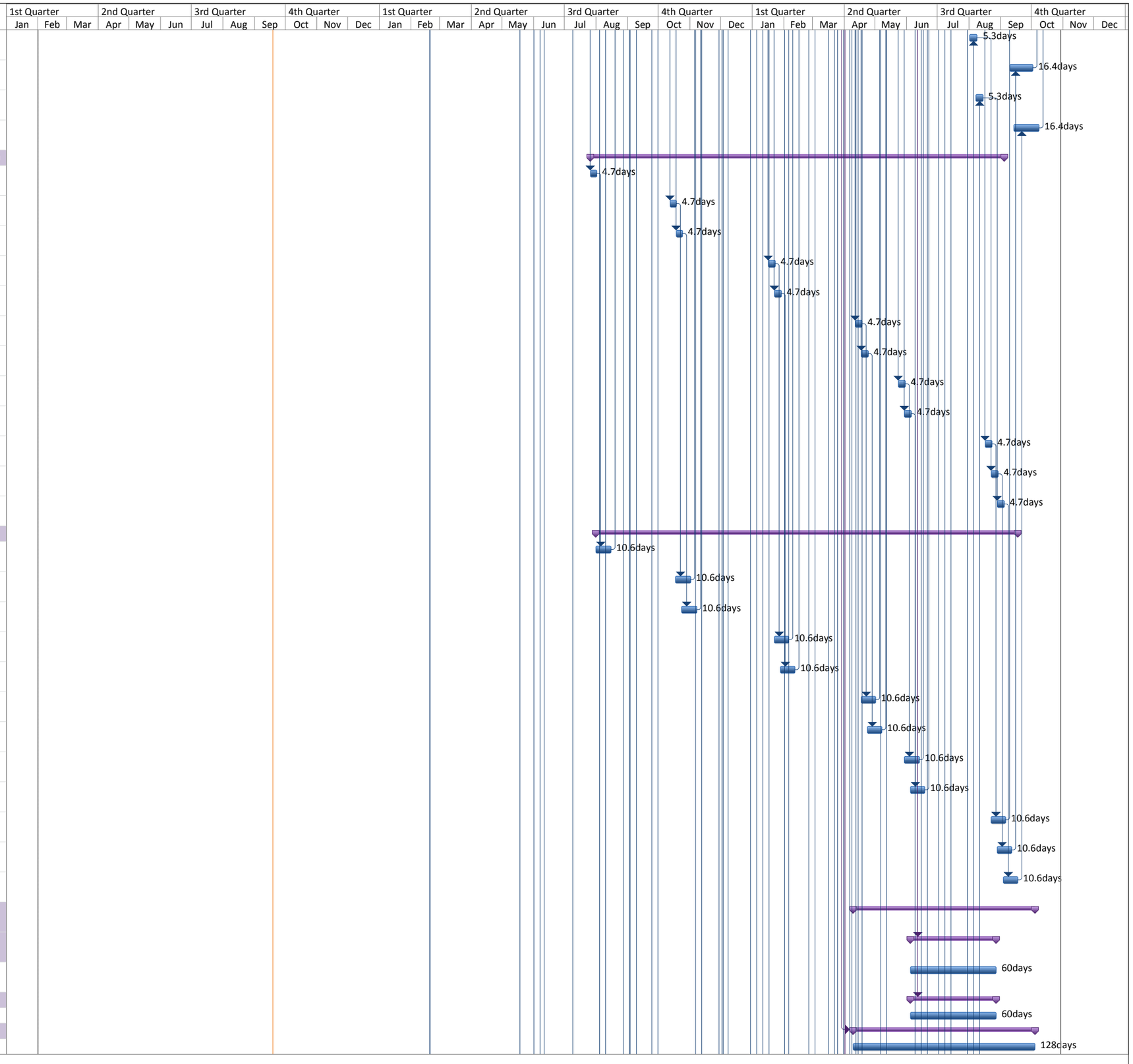
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
154		**A33 Windows and entrancies**	**18days**	**Wed 18/04/18**	**Mon 14/05/18**
155		Glazed vestibule door c/w frame, standard hardware	6.8days	Wed 18/04/18	Fri 27/04/18
156		Exterior metal doors c/w frame and hardware	11.2days	Fri 27/04/18	Mon 14/05/18
157		**A34 Roof Coverings**	**47days**	**Fri 29/03/19**	**Tue 04/06/19**
158		Hardscape. Precast concrete pavers	24.1days	Fri 29/03/19	Thu 02/05/19
159		**Modified bituminous membrane**	**47days**	**Fri 29/03/19**	**Tue 04/06/19**
160		6 mm vapour barrier	10days	Fri 29/03/19	Fri 12/04/19
161		150 mm rigid insulation	23.1days	Fri 29/03/19	Thu 02/05/19
162		12 mm plywood	10.8days	Wed 17/04/19	Thu 02/05/19
163		Bituminous membrane base layer	17.6days	Tue 30/04/19	Thu 23/05/19
164		Bituminous membrane finish layer	17.6days	Thu 09/05/19	Tue 04/06/19
165		**A35 Projections**	**0days**	**Tue 04/06/19**	**Tue 04/06/19**
166		All projections included in relative sections	0days	Tue 04/06/19	Tue 04/06/19
167		**B1 Partitions and Doors**	**436.7days**	**Fri 23/02/18**	**Tue 29/10/19**
168		**B11 Partitions**	**357.6days**	**Fri 23/02/18**	**Wed 10/07/19**
169		**GWB partitions to Level 01**	**73.2days**	**Fri 23/02/18**	**Thu 07/06/18**
170		Metal studs	18.4days	Fri 23/02/18	Thu 22/03/18
171		GWB	17.5days	Mon 14/05/18	Thu 07/06/18
172		**GWB partitions to Level 02**	**57.5days**	**Tue 05/06/18**	**Thu 23/08/18**
173		Metal studs	18.4days	Tue 05/06/18	Fri 29/06/18
174		GWB	17.5days	Tue 31/07/18	Thu 23/08/18
175		**GWB partitions to Level 03**	**57.5days**	**Mon 11/06/18**	**Wed 29/08/18**
176		Metal studs	18.4days	Mon 11/06/18	Thu 05/07/18
177		GWB	17.5days	Mon 06/08/18	Wed 29/08/18
178		**GWB partitions to Level 04**	**57.5days**	**Fri 07/09/18**	**Wed 28/11/18**
179		Metal studs	18.4days	Fri 07/09/18	Wed 03/10/18
180		GWB	17.5days	Fri 02/11/18	Wed 28/11/18
181		**GWB partitions to Level 05**	**57.5days**	**Thu 13/09/18**	**Tue 04/12/18**
182		Metal studs	18.4days	Thu 13/09/18	Tue 09/10/18
183		GWB	17.5days	Thu 08/11/18	Tue 04/12/18
184		**GWB partitions to Level 06**	**57.5days**	**Mon 03/12/18**	**Thu 21/02/19**
185		Metal studs	18.4days	Mon 03/12/18	Thu 27/12/18
186		GWB	17.5days	Mon 28/01/19	Thu 21/02/19
187		**GWB partitions to Level 07**	**57.5days**	**Fri 07/12/18**	**Wed 27/02/19**
188		Metal studs	18.4days	Fri 07/12/18	Wed 02/01/19
189		GWB	17.5days	Fri 01/02/19	Wed 27/02/19
190		**GWB partitions to Level 08**	**57.5days**	**Tue 15/01/19**	**Thu 04/04/19**
191		Metal studs	18.4days	Tue 15/01/19	Fri 08/02/19
192		GWB	17.5days	Tue 12/03/19	Thu 04/04/19
193		**GWB partitions to Level 09**	**57.3days**	**Mon 21/01/19**	**Wed 10/04/19**
194		Metal studs	18.4days	Mon 21/01/19	Thu 14/02/19
195		GWB	17.3days	Mon 18/03/19	Wed 10/04/19



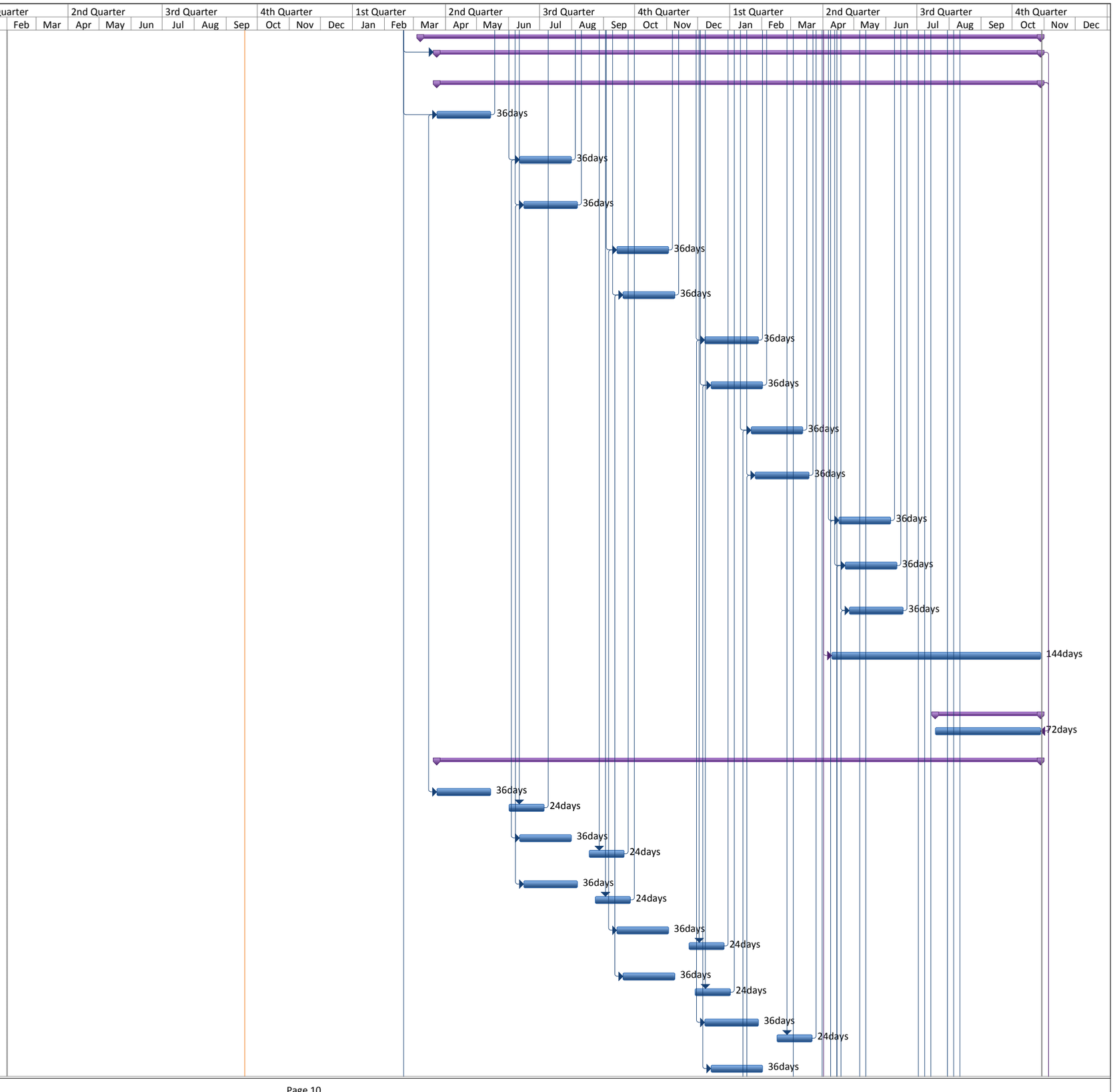
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
196		**GWB partitions to Level 10**	**57.3days**	**Wed 10/04/19**	**Fri 28/06/19**
197		Metal studs	18.4days	Wed 10/04/19	Mon 06/05/19
198		GWB	17.3days	Wed 05/06/19	Fri 28/06/19
199		**GWB partitions to Level 11**	**57.3days**	**Tue 16/04/19**	**Thu 04/07/19**
200		Metal studs	18.4days	Tue 16/04/19	Fri 10/05/19
201		GWB	17.3days	Tue 11/06/19	Thu 04/07/19
202		**GWB partitions to Level 12**	**57.3days**	**Mon 22/04/19**	**Wed 10/07/19**
203		Metal studs	18.4days	Mon 22/04/19	Thu 16/05/19
204		GWB	17.3days	Mon 17/06/19	Wed 10/07/19
205		**B12 Doors**	**299.5days**	**Tue 04/09/18**	**Tue 29/10/19**
206		Doors to Level 01	15.1days	Tue 04/09/18	Wed 26/09/18
207		Doors to Level 02	15.1days	Wed 21/11/18	Wed 12/12/18
208		Doors to Level 03	15.1days	Tue 27/11/18	Tue 18/12/18
209		Doors to Level 04	15.1days	Mon 25/02/19	Tue 19/03/19
210		Doors to Level 05	15.1days	Fri 01/03/19	Mon 25/03/19
211		Doors to Level 06	15.1days	Tue 21/05/19	Wed 12/06/19
212		Doors to Level 07	15.1days	Mon 27/05/19	Tue 18/06/19
213		Doors to Level 08	15.1days	Wed 03/07/19	Wed 24/07/19
214		Doors to Level 09	15.1days	Tue 09/07/19	Tue 30/07/19
215		Doors to Level 10	15.1days	Thu 26/09/19	Thu 17/10/19
216		Doors to Level 11	15.1days	Wed 02/10/19	Wed 23/10/19
217		Doors to Level 12	15.1days	Tue 08/10/19	Tue 29/10/19
218		**B2 Finishes**	**328.4days**	**Thu 05/07/18**	**Tue 08/10/19**
219		**B21 Floor Finishes**	**328.4days**	**Thu 05/07/18**	**Tue 08/10/19**
220		50mm concrete topping to Level 01	5.3days	Thu 05/07/18	Thu 12/07/18
221		Floor finishes to Level 01	16.4days	Mon 13/08/18	Tue 04/09/18
222		50mm concrete topping to Level 02	5.3days	Thu 20/09/18	Fri 28/09/18
223		Floor finishes to Level 02	16.4days	Tue 30/10/18	Wed 21/11/18
224		50mm concrete topping to Level 03	5.3days	Wed 26/09/18	Thu 04/10/18
225		Floor finishes to Level 03	16.4days	Mon 05/11/18	Tue 27/11/18
226		50mm concrete topping to Level 04	5.3days	Wed 26/12/18	Wed 02/01/19
227		Floor finishes to Level 04	16.4days	Fri 01/02/19	Mon 25/02/19
228		50mm concrete topping to Level 05	5.3days	Tue 01/01/19	Tue 08/01/19
229		Floor finishes to Level 05	16.4days	Thu 07/02/19	Fri 01/03/19
230		50mm concrete topping to Level 06	5.3days	Thu 21/03/19	Thu 28/03/19
231		Floor finishes to Level 06	16.4days	Mon 29/04/19	Tue 21/05/19
232		50mm concrete topping to Level 07	5.3days	Wed 27/03/19	Wed 03/04/19
233		Floor finishes to Level 07	16.4days	Fri 03/05/19	Mon 27/05/19
234		50mm concrete topping to Level 08	5.3days	Thu 02/05/19	Thu 09/05/19
235		Floor finishes to Level 08	16.4days	Tue 11/06/19	Wed 03/07/19
236		50mm concrete topping to Level 09	5.3days	Wed 08/05/19	Wed 15/05/19
237		Floor finishes to Level 09	16.4days	Fri 14/06/19	Tue 09/07/19
238		50mm concrete topping to Level 10	5.3days	Fri 26/07/19	Fri 02/08/19
239		Floor finishes to Level 10	16.4days	Tue 03/09/19	Thu 26/09/19



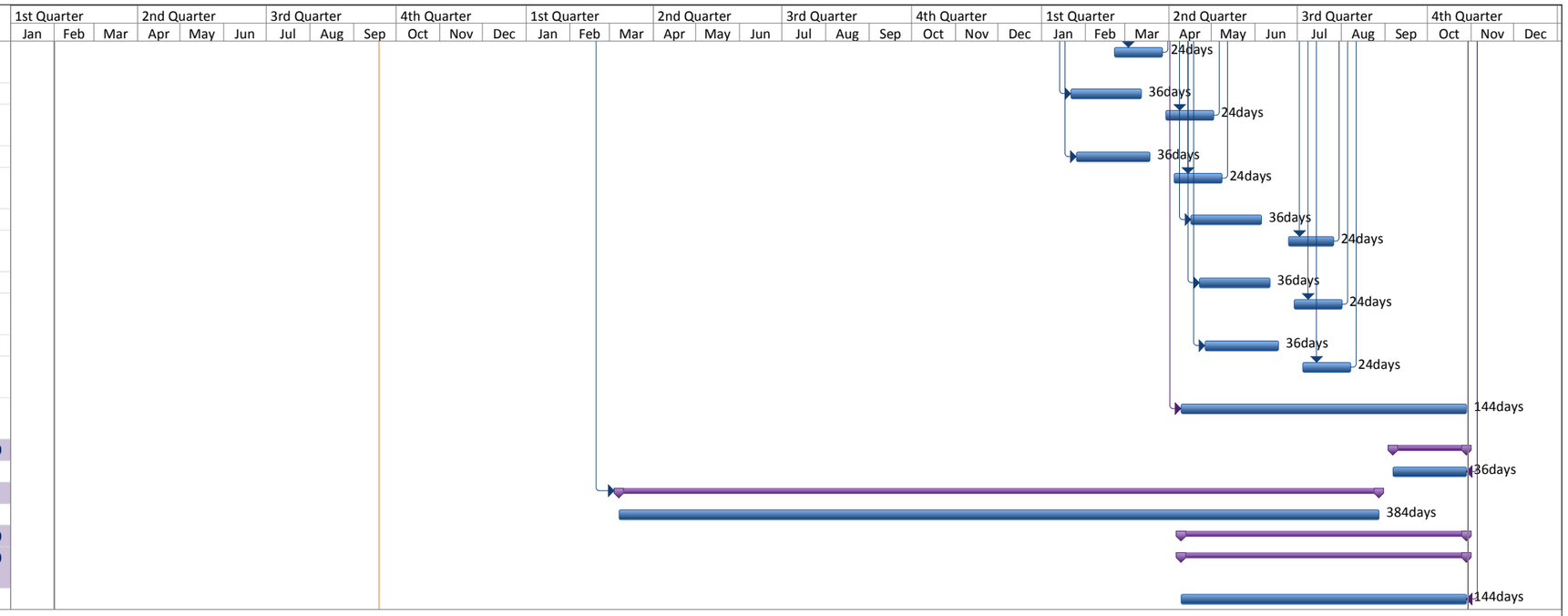
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
240		50mm concrete topping to Level 11	5.3days	Thu 01/08/19	Thu 08/08/19
241		Floor finishes to Level 11	16.4days	Mon 09/09/19	Wed 02/10/19
242		50mm concrete topping to Level 12	5.3days	Wed 07/08/19	Wed 14/08/19
243		Floor finishes to Level 12	16.4days	Fri 13/09/19	Tue 08/10/19
244		**B22 Ceiling Finishes**	**289.2days**	**Thu 26/07/18**	**Wed 04/09/19**
245		Ceiling finishes to Level 01	4.7days	Thu 26/07/18	Wed 01/08/18
246		Ceiling finishes to Level 02	4.7days	Fri 12/10/18	Thu 18/10/18
247		Ceiling finishes to Level 03	4.7days	Thu 18/10/18	Wed 24/10/18
248		Ceiling finishes to Level 04	4.7days	Wed 16/01/19	Wed 23/01/19
249		Ceiling finishes to Level 05	4.7days	Tue 22/01/19	Tue 29/01/19
250		Ceiling finishes to Level 06	4.7days	Thu 11/04/19	Thu 18/04/19
251		Ceiling finishes to Level 07	4.7days	Wed 17/04/19	Wed 24/04/19
252		Ceiling finishes to Level 08	4.7days	Thu 23/05/19	Thu 30/05/19
253		Ceiling finishes to Level 09	4.7days	Wed 29/05/19	Wed 05/06/19
254		Ceiling finishes to Level 10	4.7days	Fri 16/08/19	Fri 23/08/19
255		Ceiling finishes to Level 11	4.7days	Thu 22/08/19	Thu 29/08/19
256		Ceiling finishes to Level 12	4.7days	Wed 28/08/19	Wed 04/09/19
257		**B23 Wall Finishes**	**295days**	**Tue 31/07/18**	**Tue 17/09/19**
258		Wall finishes to Level 01	10.6days	Tue 31/07/18	Wed 15/08/18
259		Wall finishes to Level 02	10.6days	Wed 17/10/18	Thu 01/11/18
260		Wall finishes to Level 03	10.6days	Tue 23/10/18	Wed 07/11/18
261		Wall finishes to Level 04	10.6days	Tue 22/01/19	Tue 05/02/19
262		Wall finishes to Level 05	10.6days	Mon 28/01/19	Mon 11/02/19
263		Wall finishes to Level 06	10.6days	Wed 17/04/19	Wed 01/05/19
264		Wall finishes to Level 07	10.6days	Tue 23/04/19	Tue 07/05/19
265		Wall finishes to Level 08	10.6days	Wed 29/05/19	Thu 13/06/19
266		Wall finishes to Level 09	10.6days	Tue 04/06/19	Tue 18/06/19
267		Wall finishes to Level 10	10.6days	Thu 22/08/19	Thu 05/09/19
268		Wall finishes to Level 11	10.6days	Wed 28/08/19	Wed 11/09/19
269		Wall finishes to Level 12	10.6days	Tue 03/09/19	Tue 17/09/19
270		**B3 Fittings and Equipment**	**128days**	**Tue 09/04/19**	**Fri 04/10/19**
271		**B31 Fittings and Fixtures**	**60days**	**Tue 04/06/19**	**Tue 27/08/19**
272		Fittings and Fixtures	60days	Tue 04/06/19	Tue 27/08/19
273		**B32 Equipment**	**60days**	**Tue 04/06/19**	**Tue 27/08/19**
274		Equipment	60days	Tue 04/06/19	Tue 27/08/19
275		**B33 Elevators**	**128days**	**Tue 09/04/19**	**Fri 04/10/19**
276		Elevators	128days	Tue 09/04/19	Fri 04/10/19



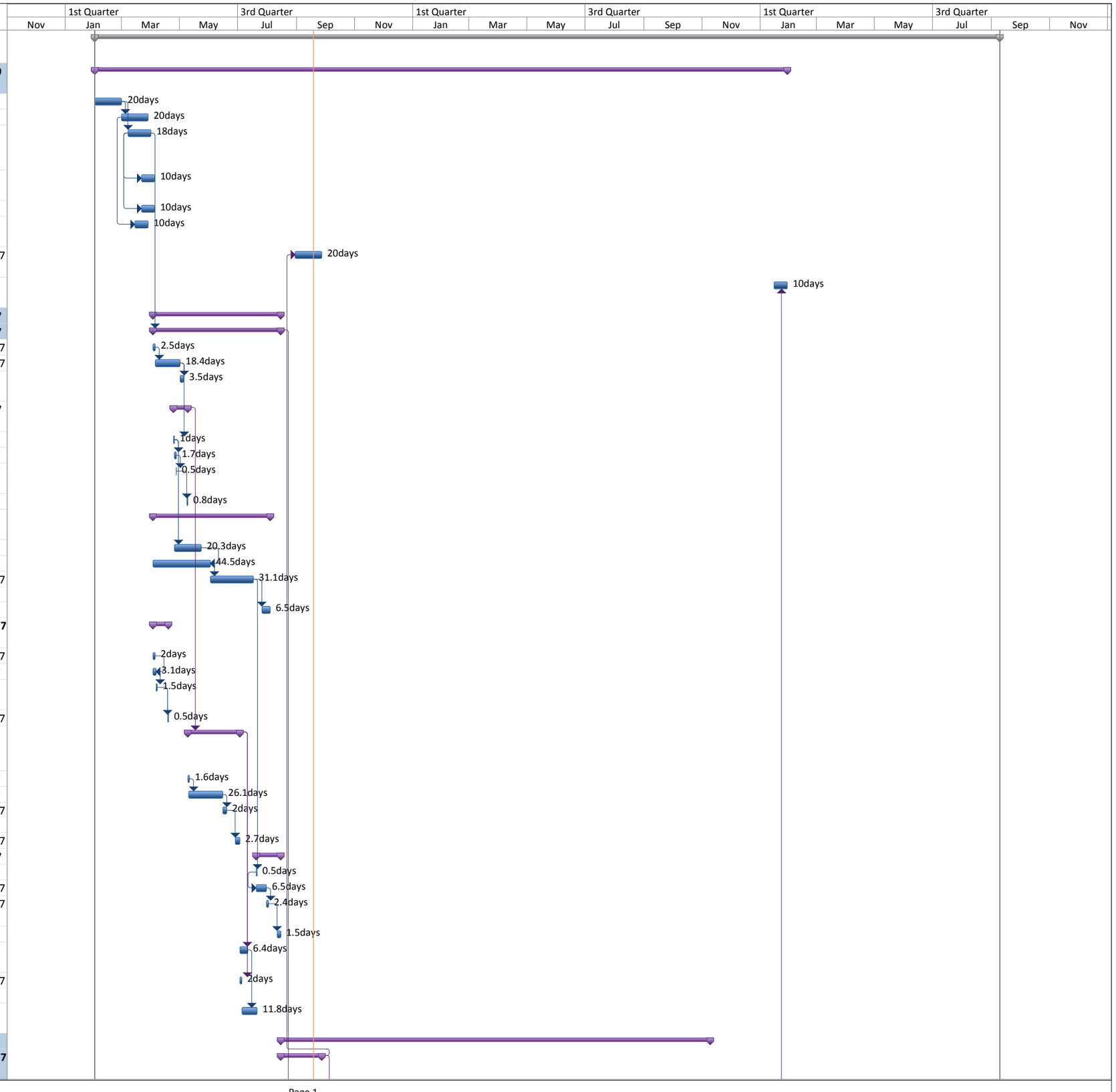
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
277		**C. Services**	**427.9days**	**Wed 07/03/18**	**Mon 28/10/19**
278		**C1. Mechanical Services**	**415.9days**	**Fri 23/03/18**	**Mon 28/10/19**
279		**C11. Plumbing and Drainage**	**415.9days**	**Fri 23/03/18**	**Mon 28/10/19**
280		Mechanical elements to Level 01	36days	Fri 23/03/18	Mon 14/05/18
281		Mechanical elements to Level 02	36days	Mon 11/06/18	Tue 31/07/18
282		Mechanical elements to Level 03	36days	Fri 15/06/18	Mon 06/08/18
283		Mechanical elements to Level 04	36days	Thu 13/09/18	Fri 02/11/18
284		Mechanical elements to Level 05	36days	Wed 19/09/18	Thu 08/11/18
285		Mechanical elements to Level 06	36days	Fri 07/12/18	Mon 28/01/19
286		Mechanical elements to Level 07	36days	Thu 13/12/18	Fri 01/02/19
287		Mechanical elements to Level 08	36days	Mon 21/01/19	Tue 12/03/19
288		Mechanical elements to Level 09	36days	Fri 25/01/19	Mon 18/03/19
289		Mechanical elements to Level 10	36days	Tue 16/04/19	Wed 05/06/19
290		Mechanical elements to Level 11	36days	Mon 22/04/19	Tue 11/06/19
291		Mechanical elements to Level 12	36days	Fri 26/04/19	Mon 17/06/19
292		Mechanical elements other, include mechanical rooms	144days	Tue 09/04/19	Mon 28/10/19
293		**C12. Fire Protection**	**72days**	**Thu 18/07/19**	**Mon 28/10/19**
294		Fire protection services	72days	Thu 18/07/19	Mon 28/10/19
295		**C13. HVAC. Radiant floor heating.**	**415.9days**	**Fri 23/03/18**	**Mon 28/10/19**
296		HVAC to Level 01	36days	Fri 23/03/18	Mon 14/05/18
297		Radiant floor heating to Level 01	24days	Fri 01/06/18	Thu 05/07/18
298		HVAC to Level 02	36days	Mon 11/06/18	Tue 31/07/18
299		Radiant floor heating to Level 02	24days	Fri 17/08/18	Thu 20/09/18
300		HVAC to Level 03	36days	Fri 15/06/18	Mon 06/08/18
301		Radiant floor heating to Level 03	24days	Thu 23/08/18	Wed 26/09/18
302		HVAC to Level 04	36days	Thu 13/09/18	Fri 02/11/18
303		Radiant floor heating to Level 04	24days	Thu 22/11/18	Wed 26/12/18
304		HVAC to Level 05	36days	Wed 19/09/18	Thu 08/11/18
305		Radiant floor heating to Level 05	24days	Wed 28/11/18	Tue 01/01/19
306		HVAC to Level 06	36days	Fri 07/12/18	Mon 28/01/19
307		Radiant floor heating to Level 06	24days	Fri 15/02/19	Thu 21/03/19
308		HVAC to Level 07	36days	Thu 13/12/18	Fri 01/02/19



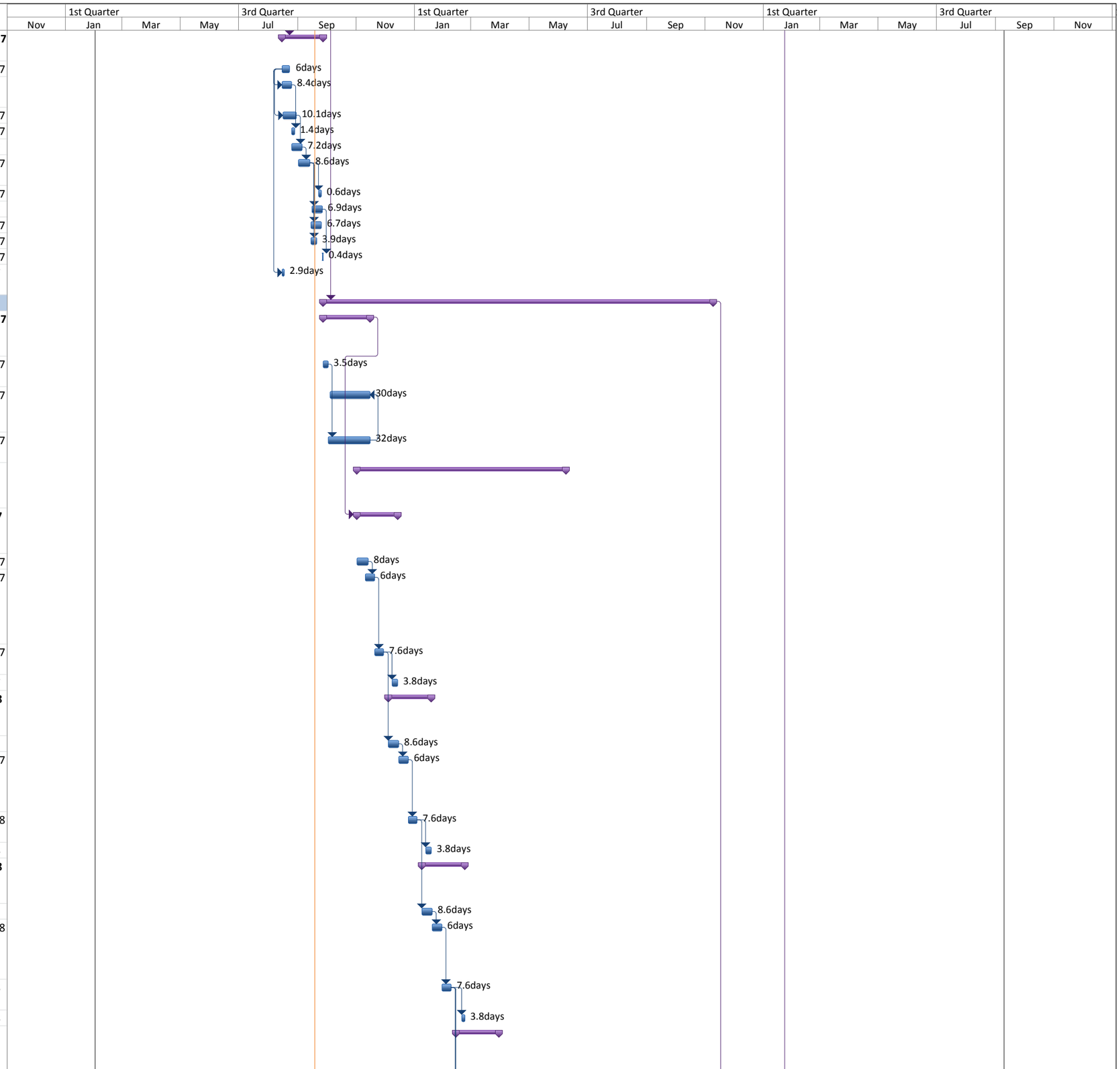
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
309		Radiant floor heating to Level 07	24days	Thu 21/02/19	Wed 27/03/19
310		HVAC to Level 08	36days	Mon 21/01/19	Tue 12/03/19
311		Radiant floor heating to Level 08	24days	Fri 29/03/19	Thu 02/05/19
312		HVAC to Level 09	36days	Fri 25/01/19	Mon 18/03/19
313		Radiant floor heating to Level 09	24days	Thu 04/04/19	Wed 08/05/19
314		HVAC to Level 10	36days	Tue 16/04/19	Wed 05/06/19
315		Radiant floor heating to Level 10	24days	Mon 24/06/19	Fri 26/07/19
316		HVAC to Level 11	36days	Mon 22/04/19	Tue 11/06/19
317		Radiant floor heating to Level 11	24days	Fri 28/06/19	Thu 01/08/19
318		HVAC to Level 12	36days	Fri 26/04/19	Mon 17/06/19
319		Radiant floor heating to Level 12	24days	Thu 04/07/19	Wed 07/08/19
320		Other HVAC to the rest of builduing	144days	Tue 09/04/19	Mon 28/10/19
321		**C14. Controls**	**36days**	**Fri 06/09/19**	**Mon 28/10/19**
322		DDC Controls	36days	Fri 06/09/19	Mon 28/10/19
323		**C2. Elecrtical Services**	**384days**	**Wed 07/03/18**	**Tue 27/08/19**
324		Electrical Services	384days	Wed 07/03/18	Tue 27/08/19
325		**D1. Site Work**	**144days**	**Tue 09/04/19**	**Mon 28/10/19**
326		**D11. Site development**	**144days**	**Tue 09/04/19**	**Mon 28/10/19**
327		Site work	144days	Tue 09/04/19	Mon 28/10/19



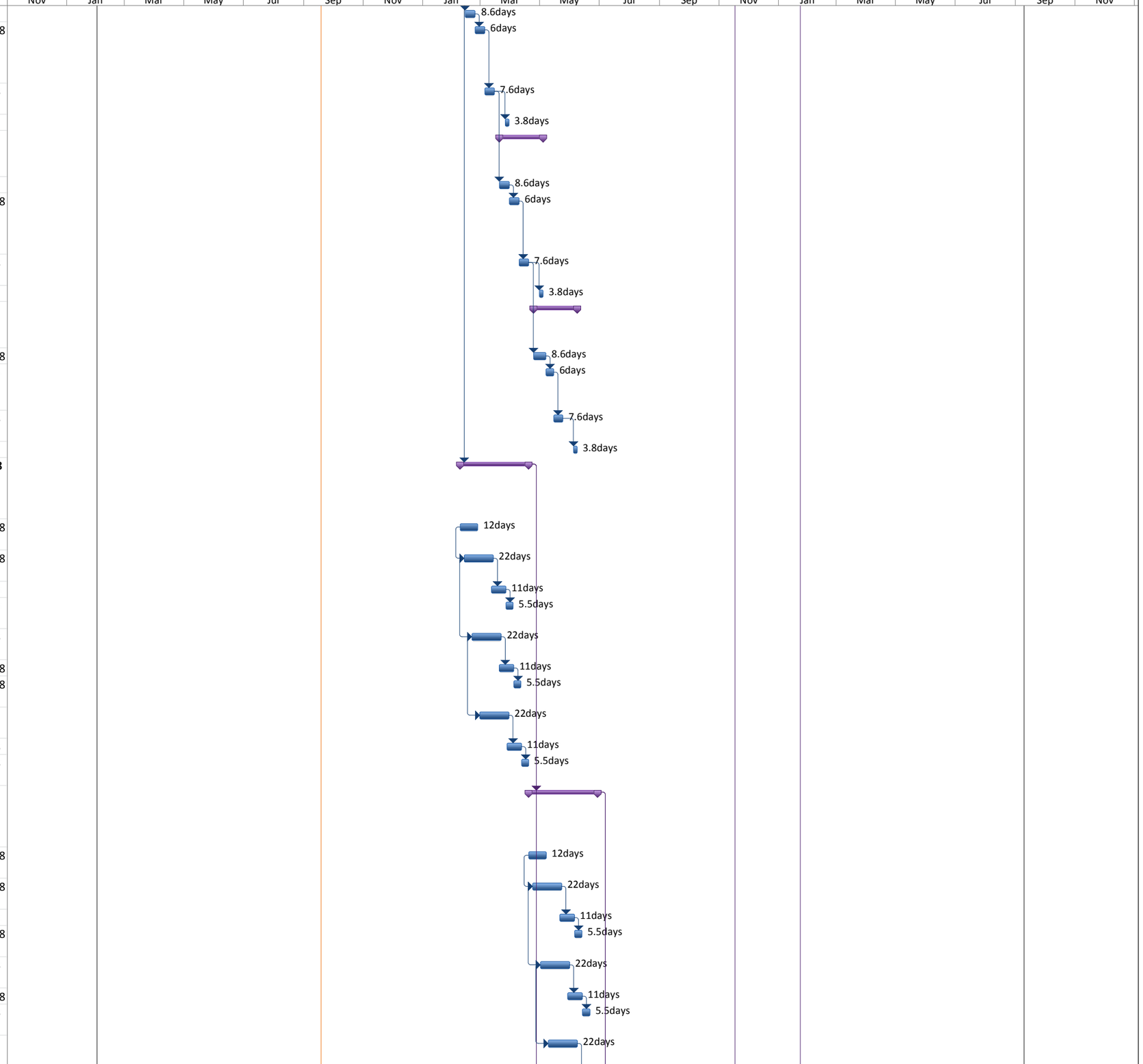
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
0		**Steel Frame Building - Commercial**	**678.7days**	**Wed 01/02/17**	**Mon 09/09/19**
1		**General Conditions and Management**	**519.1days**	**Wed 01/02/17**	**Tue 29/01/19**
2		Management preparation	20days	Wed 01/02/17	Tue 28/02/17
3		Site preparation	20days	Wed 01/03/17	Tue 28/03/17
4		Mobilization and site installation include site office	18days	Wed 08/03/17	Fri 31/03/17
5		Temporary power - connection	10days	Wed 22/03/17	Tue 04/04/17
6		Temporary electrical	10days	Wed 22/03/17	Tue 04/04/17
7		Temporary fences, signs, entries, securtity and safety	10days	Wed 15/03/17	Tue 28/03/17
8		Tower cranes installation - 3 cranes	20days	Wed 30/08/17	Wed 27/09/17
9		Tower cranes dismantle - 3 cranes	10days	Tue 15/01/19	Tue 29/01/19
10		**A1 Substructure**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
11		**A11 Foundations**	**96days**	**Mon 03/04/17**	**Tue 15/08/17**
12		Clearing and grubbing	2.5days	Mon 03/04/17	Wed 05/04/17
13		Excavation	18.4days	Wed 05/04/17	Mon 01/05/17
14		Perimeter drain c/w filter socket and granular cover	3.5days	Mon 01/05/17	Fri 05/05/17
15		**Reinforced concrete strip footing**	**11days**	**Mon 24/04/17**	**Tue 09/05/17**
16		Concrete reinforcement	1days	Mon 24/04/17	Tue 25/04/17
17		Formwork to sides	1.7days	Tue 25/04/17	Thu 27/04/17
18		Concrete placing by pumps	0.5days	Thu 27/04/17	Thu 27/04/17
19		Stripping formwork	0.8days	Mon 08/05/17	Tue 09/05/17
20		**Reinforced concrete pad footing to columns**	**89.1days**	**Mon 03/04/17**	**Fri 04/08/17**
21		Concrete reinforcement	20.3days	Tue 25/04/17	Tue 23/05/17
22		Formwork to sides	44.5days	Mon 03/04/17	Fri 02/06/17
23		Concrete placing by pumps	31.1days	Fri 02/06/17	Mon 17/07/17
24		Stripping formwork	6.5days	Wed 26/07/17	Fri 04/08/17
25		**Raft slab below elevator & stair cores**	**12.1days**	**Mon 03/04/17**	**Wed 19/04/17**
26		Concrete reinforcement	2days	Mon 03/04/17	Wed 05/04/17
27		Formwork to sides	3.1days	Mon 03/04/17	Thu 06/04/17
28		Concrete placing by pump	1.5days	Thu 06/04/17	Fri 07/04/17
29		Stripping formwork	0.5days	Tue 18/04/17	Wed 19/04/17
30		**Foundation wall. Reinforced concrete 250 mm thick**	**38.4days**	**Tue 09/05/17**	**Mon 03/07/17**
31		Concrete reinforcement	1.6days	Tue 09/05/17	Thu 11/05/17
32		Formwork to sides	26.1days	Wed 10/05/17	Thu 15/06/17
33		Concrete placing by pump	2days	Thu 15/06/17	Mon 19/06/17
34		Stripping formwork	2.7days	Wed 28/06/17	Mon 03/07/17
35		**Piers. Reinforced concrete**	**17.4days**	**Thu 20/07/17**	**Tue 15/08/17**
36		Concrete reinforcement	0.5days	Thu 20/07/17	Fri 21/07/17
37		Formwork to sides	6.5days	Thu 20/07/17	Mon 31/07/17
38		Concrete placing by pumps	2.4days	Mon 31/07/17	Wed 02/08/17
39		Stripping formwork	1.5days	Fri 11/08/17	Tue 15/08/17
40		Extraover for dampproofing	6.4days	Mon 03/07/17	Tue 11/07/17
41		Allowance for expansion joint	2days	Mon 03/07/17	Wed 05/07/17
42		Backfill excavated area c/w compaction	11.8days	Wed 05/07/17	Fri 21/07/17
43		**A2 Structure**	**323.1days**	**Tue 15/08/17**	**Fri 09/11/18**
44		**A21 Lowest Floor Construction**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**



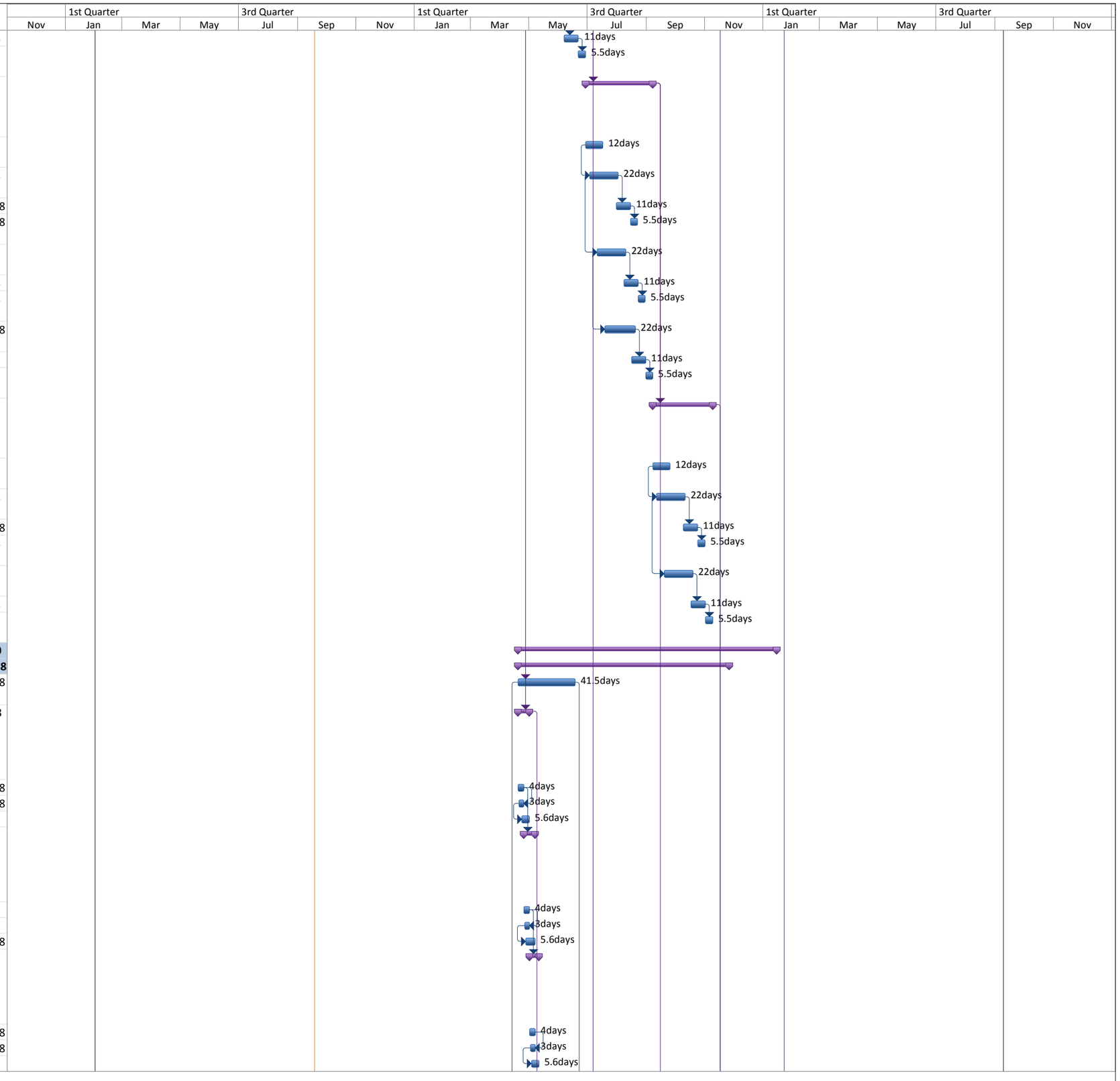
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
45		**250 mm reinforced concrete slab**	**31.2days**	**Tue 15/08/17**	**Wed 27/09/17**
46		6 mm vapour barrier	6days	Tue 15/08/17	Wed 23/08/17
47		300 mm granular fill compacted slab	8.4days	Tue 15/08/17	Fri 25/08/17
48		75 mm rigid insulation	10.1days	Wed 16/08/17	Wed 30/08/17
49		Formwork to openings	1.4days	Fri 25/08/17	Mon 28/08/17
50		Concrete reinforcement	7.2days	Fri 25/08/17	Tue 05/09/17
51		Concrete placing by pump	8.6days	Fri 01/09/17	Wed 13/09/17
52		Stripping formwork	0.6days	Fri 22/09/17	Mon 25/09/17
53		Finishing	6.9days	Fri 15/09/17	Tue 26/09/17
54		Water curing	6.7days	Thu 14/09/17	Mon 25/09/17
55		Sheet membrane curing	3.9days	Thu 14/09/17	Wed 20/09/17
56		Sawcut control joints	0.4days	Tue 26/09/17	Wed 27/09/17
57		Civil works. General civil infrastructure allowance	2.9days	Tue 15/08/17	Thu 17/08/17
58		**A22 Upper Floor Construction**	**291.9days**	**Wed 27/09/17**	**Fri 09/11/18**
59		**Level 01 to Level 02, include suspended slab to Level 02**	**35.5days**	**Wed 27/09/17**	**Wed 15/11/17**
60		Concrete columns to Level 01	3.5days	Wed 27/09/17	Mon 02/10/17
61		Concrete stair and elevators cores to Level 01	30days	Wed 04/10/17	Wed 15/11/17
62		Concrete suspended slab to Level 02	32days	Mon 02/10/17	Wed 15/11/17
63		**Concrete stair and elevator cores to Level 02-12 and Roof**	**156.8days**	**Wed 01/11/17**	**Fri 08/06/18**
64		**Concrete stair and elevator cores to Level 02, Level 03. 12 cores**	**30.8days**	**Wed 01/11/17**	**Thu 14/12/17**
65		Rebar	8days	Wed 01/11/17	Mon 13/11/17
66		Installation of customed engineered formwork. Height for 2 floors	6days	Fri 10/11/17	Mon 20/11/17
67		Concrete placing by pumps	7.6days	Mon 20/11/17	Wed 29/11/17
68		Stripping formwork	3.8days	Fri 08/12/17	Thu 14/12/17
69		**Concrete stair and elevator cores to Level 04, Level 05. 12 cores**	**32.9days**	**Mon 04/12/17**	**Thu 18/01/18**
70		Rebar	8.6days	Mon 04/12/17	Fri 15/12/17
71		Installation of engineered formwork. Height for 2 floors	6days	Fri 15/12/17	Mon 25/12/17
72		Concrete placing by pumps	7.6days	Mon 25/12/17	Wed 03/01/18
73		Stripping formwork	3.8days	Fri 12/01/18	Thu 18/01/18
74		**Concrete stair and elevator cores to Level 06, Level 07. 12 cores**	**32.9days**	**Mon 08/01/18**	**Thu 22/02/18**
75		Rebar	8.6days	Mon 08/01/18	Fri 19/01/18
76		Installation of engineered formwork. Height for 2 floors	6days	Fri 19/01/18	Mon 29/01/18
77		Concrete placing by pumps	7.6days	Mon 29/01/18	Thu 08/02/18
78		Stripping formwork	3.8days	Mon 19/02/18	Thu 22/02/18
79		**Concrete stair and elevator cores to Level 08, Level 09. 12 cores**	**32.9days**	**Tue 13/02/18**	**Fri 30/03/18**



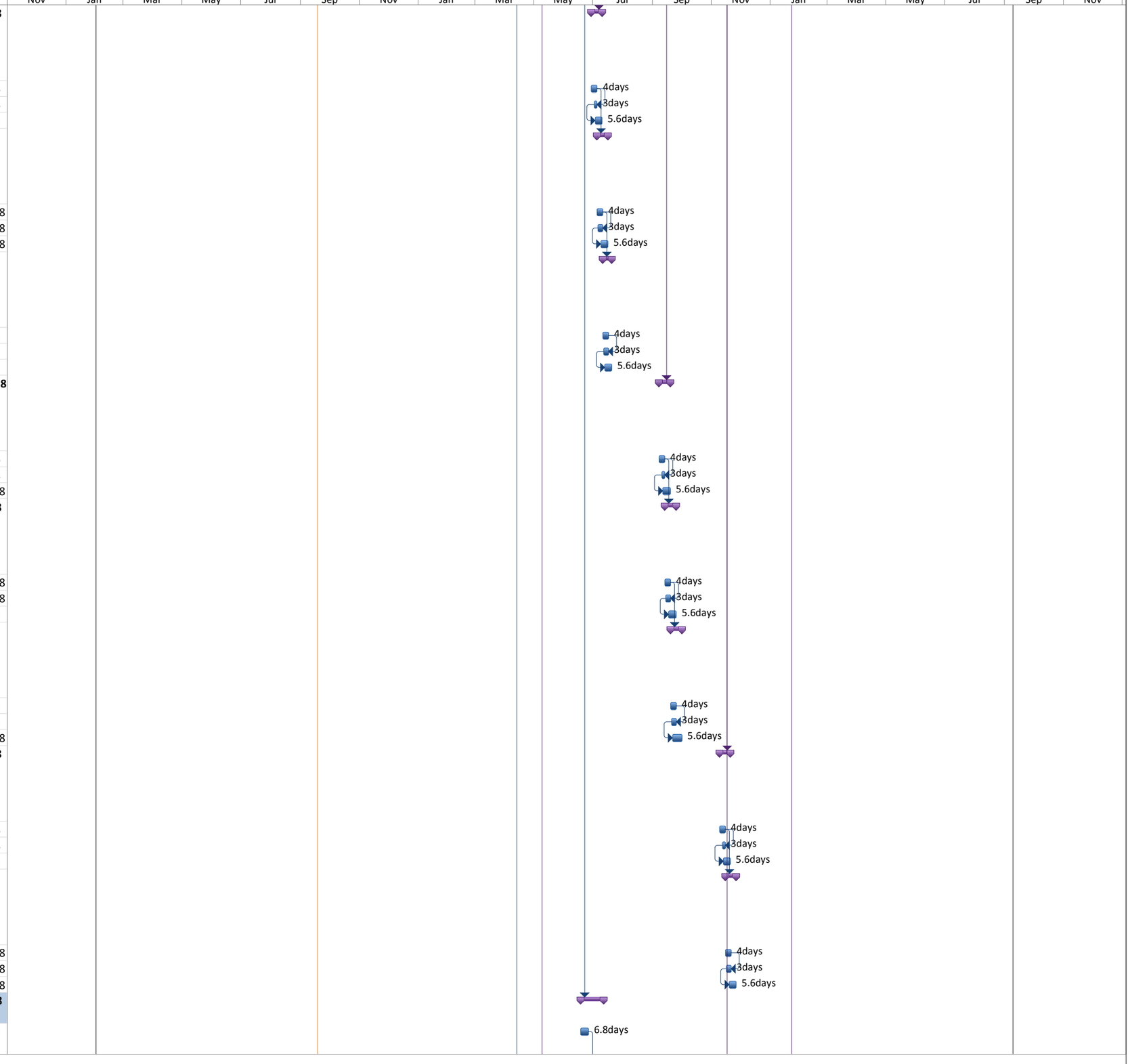
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
80		Rebar	8.6days	Tue 13/02/18	Fri 23/02/18
81		Installation of engineered formwork. Height for 2 floors	6days	Fri 23/02/18	Mon 05/03/18
82		Concrete placing by pumps	7.6days	Mon 05/03/18	Thu 15/03/18
83		Stripping formwork	3.8days	Mon 26/03/18	Fri 30/03/18
84		**Concrete stair and elevator cores to Level 10, Level 11. 12 cores**	**32.9days**	**Tue 20/03/18**	**Fri 04/05/18**
85		Rebar	8.6days	Tue 20/03/18	Fri 30/03/18
86		Installation of engineered formwork. Height for 2 floors	6days	Fri 30/03/18	Mon 09/04/18
87		Concrete placing by pumps	7.6days	Mon 09/04/18	Thu 19/04/18
88		Stripping formwork	3.8days	Mon 30/04/18	Fri 04/05/18
89		**Concrete stair and elevator cores to Level 12, Roof. 12 cores**	**32.9days**	**Tue 24/04/18**	**Fri 08/06/18**
90		Rebar	8.6days	Tue 24/04/18	Mon 07/05/18
91		Installation of engineered formwork	6days	Mon 07/05/18	Tue 15/05/18
92		Concrete placing by pumps	7.6days	Tue 15/05/18	Thu 24/05/18
93		Stripping formwork	3.8days	Mon 04/06/18	Fri 08/06/18
94		**Steel Frame c/w columns to Level 02-04. Beams, bracing and steel deck to Level 03-05**	**50.5days**	**Thu 08/02/18**	**Thu 19/04/18**
95		Steel columns. 3 floors height	12days	Thu 08/02/18	Mon 26/02/18
96		Beams, bracing to Level 02	22days	Mon 12/02/18	Wed 14/03/18
97		Steel deck to Level 03	11days	Mon 12/03/18	Tue 27/03/18
98		Concrete topping to Level 03	5.5days	Tue 27/03/18	Tue 03/04/18
99		Beams, bracing to Level 03	22days	Tue 20/02/18	Thu 22/03/18
100		Steel deck to Level 04	11days	Tue 20/03/18	Wed 04/04/18
101		Concrete topping to Level 04	5.5days	Wed 04/04/18	Wed 11/04/18
102		Beams, bracing to Level 04	22days	Wed 28/02/18	Fri 30/03/18
103		Steel deck to Level 05	11days	Wed 28/03/18	Thu 12/04/18
104		Concrete topping to Level 05	5.5days	Thu 12/04/18	Thu 19/04/18
105		**Steel Frame c/w columns to Level 05-07. Beams, bracing and steel deck to Level 06-08**	**50.5days**	**Thu 19/04/18**	**Fri 29/06/18**
106		Steel columns. 3 floors height	12days	Thu 19/04/18	Mon 07/05/18
107		Beams, bracing to Level 05	22days	Mon 23/04/18	Wed 23/05/18
108		Steel deck to Level 06	11days	Mon 21/05/18	Tue 05/06/18
109		Concrete topping to Level 06	5.5days	Tue 05/06/18	Wed 13/06/18
110		Beams, bracing to Level 06	22days	Tue 01/05/18	Thu 31/05/18
111		Steel deck to Level 07	11days	Tue 29/05/18	Wed 13/06/18
112		Concrete topping to Level 07	5.5days	Wed 13/06/18	Thu 21/06/18
113		Beams, bracing to Level 07	22days	Wed 09/05/18	Fri 08/06/18



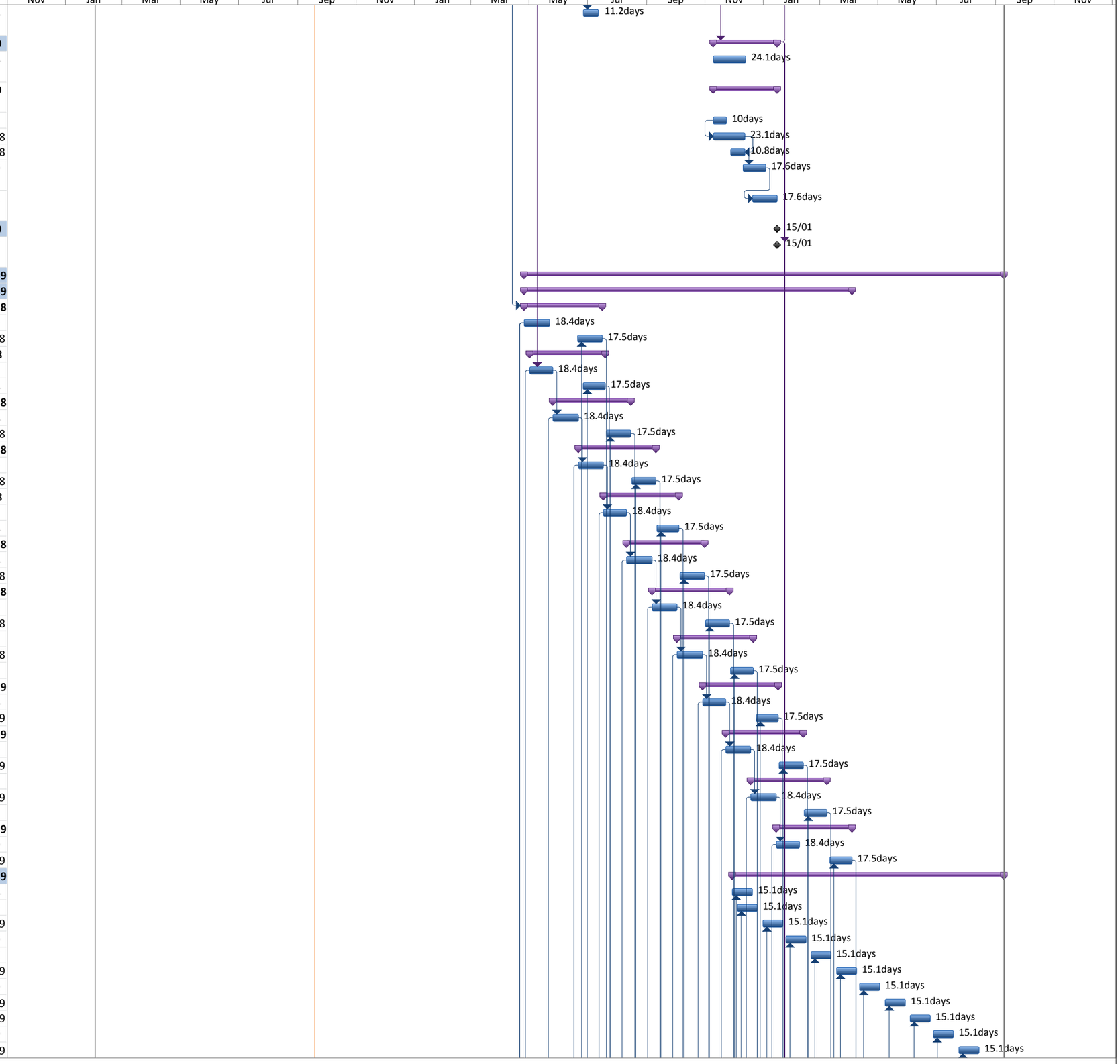
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
114		Steel deck to Level 08	11days	Wed 06/06/18	Thu 21/06/18
115		Concrete topping to Level 08	5.5days	Thu 21/06/18	Fri 29/06/18
116		**Steel Frame c/w columns to Level 08-10. Beams, bracing and steel deck to Level 09-11**	**50.5days**	**Fri 29/06/18**	**Fri 07/09/18**
117		Steel columns. 3 floors height	12days	Fri 29/06/18	Tue 17/07/18
118		Beams, bracing to Level 08	22days	Tue 03/07/18	Thu 02/08/18
119		Steel deck to Level 09	11days	Tue 31/07/18	Wed 15/08/18
120		Concrete topping to Level 09	5.5days	Wed 15/08/18	Wed 22/08/18
121		Beams, bracing to Level 09	22days	Wed 11/07/18	Fri 10/08/18
122		Steel deck to Level 10	11days	Wed 08/08/18	Thu 23/08/18
123		Concrete topping to Level 10	5.5days	Thu 23/08/18	Thu 30/08/18
124		Beams, bracing to Level 10	22days	Thu 19/07/18	Mon 20/08/18
125		Steel deck to Level 11	11days	Thu 16/08/18	Fri 31/08/18
126		Concrete topping to Level 11	5.5days	Fri 31/08/18	Fri 07/09/18
127		**Steel Frame c/w columns to Level 11-12. Beams, bracing and steel deck to Level 12-Roof**	**44.5days**	**Fri 07/09/18**	**Fri 09/11/18**
128		Steel columns. 3 floors height	12days	Fri 07/09/18	Tue 25/09/18
129		Beams, bracing to Level 11	22days	Tue 11/09/18	Thu 11/10/18
130		Steel deck to Level 12	11days	Tue 09/10/18	Wed 24/10/18
131		Concrete topping to Level 12	5.5days	Wed 24/10/18	Thu 01/11/18
132		Beams, bracing to Level 12	22days	Wed 19/09/18	Fri 19/10/18
133		Steel deck to Roof	11days	Wed 17/10/18	Thu 01/11/18
134		Concrete topping to Roof	5.5days	Thu 01/11/18	Fri 09/11/18
135		**A3 Exterior Enclosure**	**192.5days**	**Thu 19/04/18**	**Tue 15/01/19**
136		**A32 Walls Above Grade**	**157.1days**	**Thu 19/04/18**	**Mon 26/11/18**
137		Level 01. Double glazed curtain wall assembly	41.5days	Thu 19/04/18	Mon 18/06/18
138		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 02**	**7.6days**	**Thu 19/04/18**	**Tue 01/05/18**
139		EW-1, EW-2 to Level 02	4days	Thu 19/04/18	Wed 25/04/18
140		Vapour barrier	3days	Fri 20/04/18	Wed 25/04/18
141		16 mm GWB wall board	5.6days	Mon 23/04/18	Tue 01/05/18
142		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 03**	**7.6days**	**Wed 25/04/18**	**Mon 07/05/18**
143		EW-1, EW-2 to Level 03	4days	Wed 25/04/18	Tue 01/05/18
144		Vapour barrier	3days	Thu 26/04/18	Tue 01/05/18
145		16 mm GWB wall board	5.6days	Fri 27/04/18	Mon 07/05/18
146		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 04**	**7.6days**	**Tue 01/05/18**	**Fri 11/05/18**
147		EW-1, EW-2 to Level 04	4days	Tue 01/05/18	Mon 07/05/18
148		Vapour barrier	3days	Wed 02/05/18	Mon 07/05/18
149		16 mm GWB wall board	5.6days	Thu 03/05/18	Fri 11/05/18



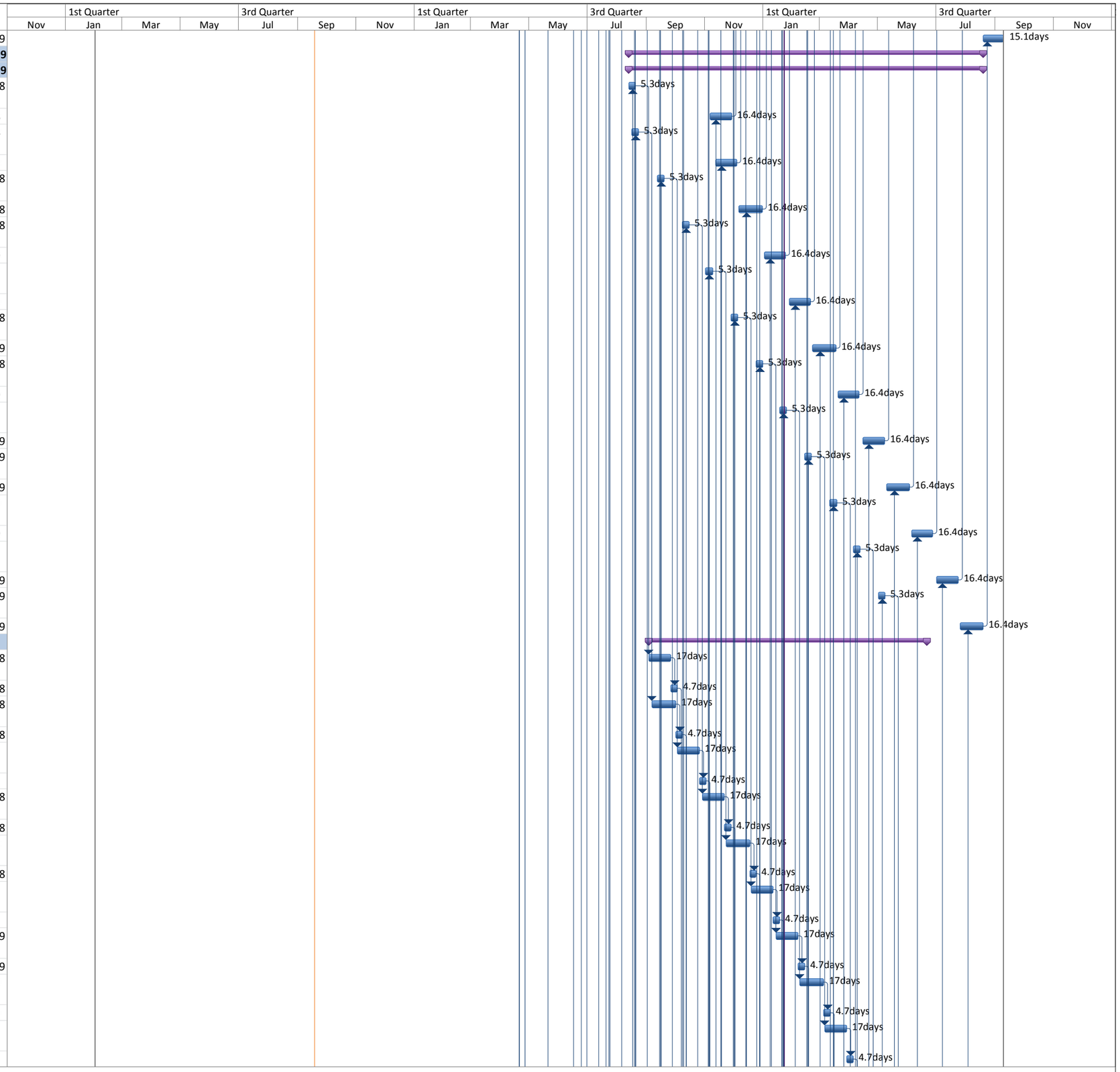
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
150		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 05**	**7.6days**	**Fri 29/06/18**	**Tue 10/07/18**
151		EW-1, EW-2 to Level 05	4days	Fri 29/06/18	Thu 05/07/18
152		Vapour barrier	3days	Mon 02/07/18	Thu 05/07/18
153		16 mm GWB wall board	5.6days	Tue 03/07/18	Tue 10/07/18
154		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 06**	**7.6days**	**Thu 05/07/18**	**Mon 16/07/18**
155		EW-1, EW-2 to Level 06	4days	Thu 05/07/18	Wed 11/07/18
156		Vapour barrier	3days	Fri 06/07/18	Wed 11/07/18
157		16 mm GWB wall board	5.6days	Mon 09/07/18	Mon 16/07/18
158		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 07**	**7.6days**	**Wed 11/07/18**	**Fri 20/07/18**
159		EW-1, EW-2 to Level 07	4days	Wed 11/07/18	Tue 17/07/18
160		Vapour barrier	3days	Thu 12/07/18	Tue 17/07/18
161		16 mm GWB wall board	5.6days	Fri 13/07/18	Fri 20/07/18
162		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 08**	**7.6days**	**Fri 07/09/18**	**Wed 19/09/18**
163		EW-1, EW-2 to Level 08	4days	Fri 07/09/18	Thu 13/09/18
164		Vapour barrier	3days	Mon 10/09/18	Thu 13/09/18
165		16 mm GWB wall board	5.6days	Tue 11/09/18	Wed 19/09/18
166		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 09**	**7.6days**	**Thu 13/09/18**	**Tue 25/09/18**
167		EW-1, EW-2 to Level 09	4days	Thu 13/09/18	Wed 19/09/18
168		Vapour barrier	3days	Fri 14/09/18	Wed 19/09/18
169		16 mm GWB wall board	5.6days	Mon 17/09/18	Tue 25/09/18
170		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 10**	**7.6days**	**Wed 19/09/18**	**Mon 01/10/18**
171		EW-1, EW-2 to Level 10	4days	Wed 19/09/18	Tue 25/09/18
172		Vapour barrier	3days	Thu 20/09/18	Tue 25/09/18
173		16 mm GWB wall board	5.6days	Fri 21/09/18	Mon 01/10/18
174		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 11**	**7.6days**	**Fri 09/11/18**	**Tue 20/11/18**
175		EW-1, EW-2 to Level 11	4days	Fri 09/11/18	Thu 15/11/18
176		Vapour barrier	3days	Mon 12/11/18	Thu 15/11/18
177		16 mm GWB wall board	5.6days	Tue 13/11/18	Tue 20/11/18
178		**EW-1, EW-2. Solid prefabricated panels c/w siding, sheathing, studs, insulation and glazing to Level 12**	**7.6days**	**Thu 15/11/18**	**Mon 26/11/18**
179		EW-1, EW-2 to Level 12	4days	Thu 15/11/18	Wed 21/11/18
180		Vapour barrier	3days	Fri 16/11/18	Wed 21/11/18
181		16 mm GWB wall board	5.6days	Mon 19/11/18	Mon 26/11/18
182		**A33 Windows and entrancies**	**18days**	**Mon 18/06/18**	**Thu 12/07/18**
183		Glazed vestibule door c/w frame, standard hardware	6.8days	Mon 18/06/18	Tue 26/06/18



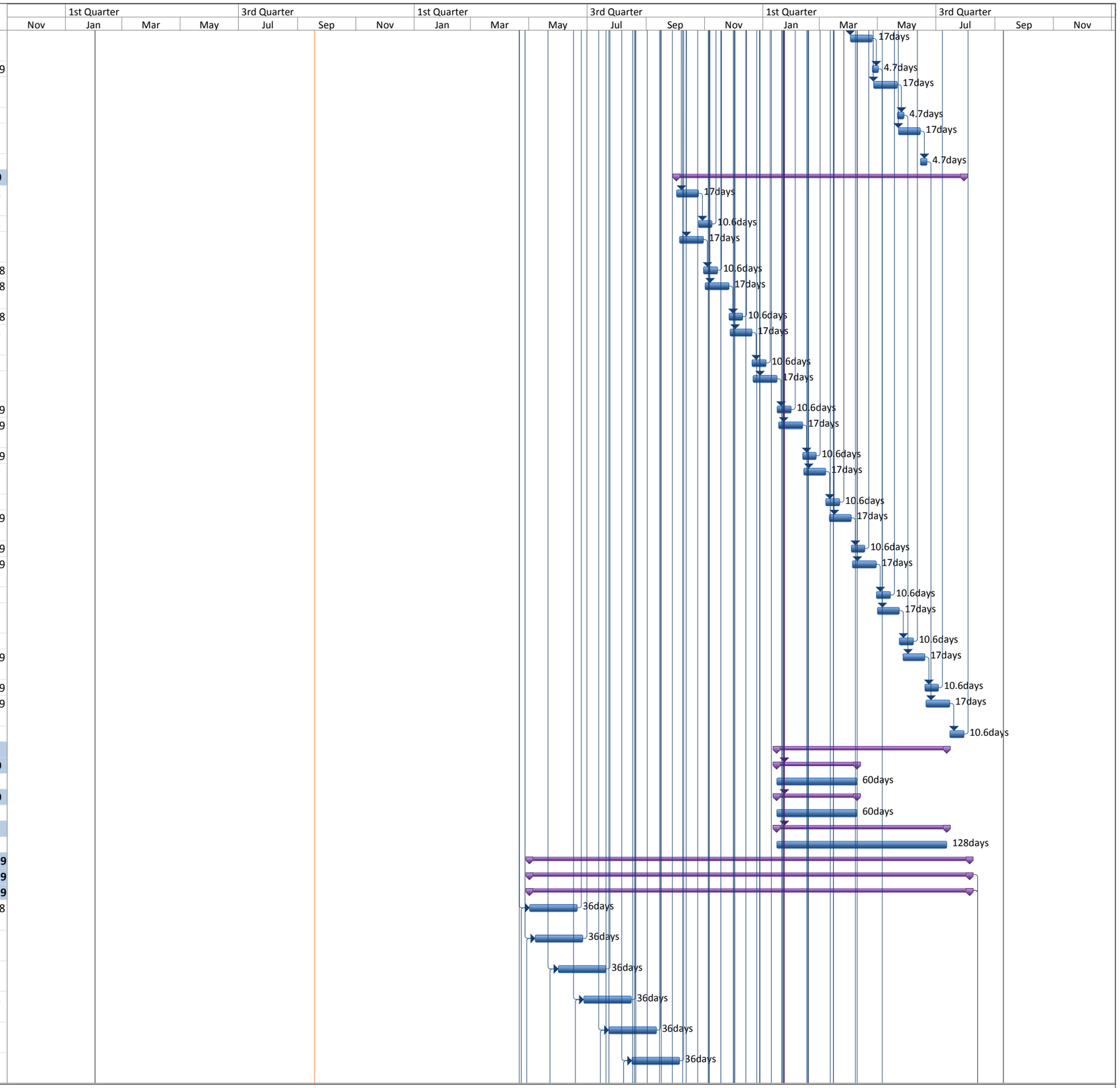
ID	Task Mode	Task Name	Rounded Duration	Start	Finish
184		Exterior metal doors c/w frame and hardware	11.2days	Tue 26/06/18	Thu 12/07/18
185		**A34 Roof Coverings**	**47days**	**Fri 09/11/18**	**Tue 15/01/19**
186		Hardscape. Precast concrete pavers	24.1days	Fri 09/11/18	Thu 13/12/18
187		**Modified bituminous membrane**	**47days**	**Fri 09/11/18**	**Tue 15/01/19**
188		6 mm vapour barrier	10days	Fri 09/11/18	Fri 23/11/18
189		150 mm rigid insulation	23.1days	Fri 09/11/18	Wed 12/12/18
190		12 mm plywood	10.8days	Tue 27/11/18	Wed 12/12/18
191		Bituminous membrane base layer	17.6days	Mon 10/12/18	Thu 03/01/19
192		Bituminous membrane finish layer	17.6days	Thu 20/12/18	Tue 15/01/19
193		**A35 Projections**	**0days**	**Tue 15/01/19**	**Tue 15/01/19**
194		All projections included in relative sections	0days	Tue 15/01/19	Tue 15/01/19
195		**B1 Partitions and Doors**	**358.1days**	**Wed 25/04/18**	**Mon 09/09/19**
196		**B11 Partitions**	**245days**	**Wed 25/04/18**	**Wed 03/04/19**
197		**GWB partitions to Level 01**	**57.5days**	**Wed 25/04/18**	**Mon 16/07/18**
198		Metal studs	18.4days	Wed 25/04/18	Tue 22/05/18
199		GWB	17.5days	Wed 20/06/18	Mon 16/07/18
200		**GWB partitions to Level 02**	**57.5days**	**Tue 01/05/18**	**Thu 19/07/18**
201		Metal studs	18.4days	Tue 01/05/18	Fri 25/05/18
202		GWB	17.5days	Tue 26/06/18	Thu 19/07/18
203		**GWB partitions to Level 03**	**57.5days**	**Fri 25/05/18**	**Wed 15/08/18**
204		Metal studs	18.4days	Fri 25/05/18	Thu 21/06/18
205		GWB	17.5days	Fri 20/07/18	Wed 15/08/18
206		**GWB partitions to Level 04**	**57.5days**	**Thu 21/06/18**	**Mon 10/09/18**
207		Metal studs	18.4days	Thu 21/06/18	Tue 17/07/18
208		GWB	17.5days	Thu 16/08/18	Mon 10/09/18
209		**GWB partitions to Level 05**	**57.5days**	**Tue 17/07/18**	**Thu 04/10/18**
210		Metal studs	18.4days	Tue 17/07/18	Fri 10/08/18
211		GWB	17.5days	Tue 11/09/18	Thu 04/10/18
212		**GWB partitions to Level 06**	**57.5days**	**Fri 10/08/18**	**Wed 31/10/18**
213		Metal studs	18.4days	Fri 10/08/18	Thu 06/09/18
214		GWB	17.5days	Fri 05/10/18	Wed 31/10/18
215		**GWB partitions to Level 07**	**57.5days**	**Thu 06/09/18**	**Mon 26/11/18**
216		Metal studs	18.4days	Thu 06/09/18	Tue 02/10/18
217		GWB	17.5days	Thu 01/11/18	Mon 26/11/18
218		**GWB partitions to Level 08**	**57.5days**	**Tue 02/10/18**	**Fri 21/12/18**
219		Metal studs	18.4days	Tue 02/10/18	Mon 29/10/18
220		GWB	17.5days	Tue 27/11/18	Fri 21/12/18
221		**GWB partitions to Level 09**	**57.5days**	**Mon 29/10/18**	**Wed 16/01/19**
222		Metal studs	18.4days	Mon 29/10/18	Thu 22/11/18
223		GWB	17.5days	Mon 24/12/18	Wed 16/01/19
224		**GWB partitions to Level 10**	**57.5days**	**Thu 22/11/18**	**Mon 11/02/19**
225		Metal studs	18.4days	Thu 22/11/18	Tue 18/12/18
226		GWB	17.5days	Thu 17/01/19	Mon 11/02/19
227		**GWB partitions to Level 11**	**57.5days**	**Tue 18/12/18**	**Fri 08/03/19**
228		Metal studs	18.4days	Tue 18/12/18	Mon 14/01/19
229		GWB	17.5days	Tue 12/02/19	Fri 08/03/19
230		**GWB partitions to Level 12**	**57.5days**	**Mon 14/01/19**	**Wed 03/04/19**
231		Metal studs	18.4days	Mon 14/01/19	Thu 07/02/19
232		GWB	17.5days	Mon 11/03/19	Wed 03/04/19
233		**B12 Doors**	**202.7days**	**Thu 29/11/18**	**Mon 09/09/19**
234		Doors to Level 01	15.1days	Thu 29/11/18	Thu 20/12/18
235		Doors to Level 02	15.1days	Tue 04/12/18	Tue 25/12/18
236		Doors to Level 03	15.1days	Mon 31/12/18	Mon 21/01/19
237		Doors to Level 04	15.1days	Thu 24/01/19	Thu 14/02/19
238		Doors to Level 05	15.1days	Tue 19/02/19	Tue 12/03/19
239		Doors to Level 06	15.1days	Mon 18/03/19	Mon 08/04/19
240		Doors to Level 07	15.1days	Thu 11/04/19	Thu 02/05/19
241		Doors to Level 08	15.1days	Wed 08/05/19	Wed 29/05/19
242		Doors to Level 09	15.1days	Mon 03/06/19	Mon 24/06/19
243		Doors to Level 10	15.1days	Thu 27/06/19	Thu 18/07/19
244		Doors to Level 11	15.1days	Wed 24/07/19	Wed 14/08/19



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
245		Doors to Level 12	15.1days	Mon 19/08/19	Mon 09/09/19
246		**B2 Finishes**	**265.5days**	**Mon 13/08/18**	**Mon 19/08/19**
247		**B21 Floor Finishes**	**265.5days**	**Mon 13/08/18**	**Mon 19/08/19**
248		50mm concrete topping to Level 01	5.3days	Mon 13/08/18	Mon 20/08/18
249		Floor finishes to Level 01	16.4days	Tue 06/11/18	Thu 29/11/18
250		50mm concrete topping to Level 02	5.3days	Thu 16/08/18	Thu 23/08/18
251		Floor finishes to Level 02	16.4days	Mon 12/11/18	Tue 04/12/18
252		50mm concrete topping to Level 03	5.3days	Wed 12/09/18	Wed 19/09/18
253		Floor finishes to Level 03	16.4days	Thu 06/12/18	Mon 31/12/18
254		50mm concrete topping to Level 04	5.3days	Mon 08/10/18	Mon 15/10/18
255		Floor finishes to Level 04	16.4days	Wed 02/01/19	Thu 24/01/19
256		50mm concrete topping to Level 05	5.3days	Thu 01/11/18	Fri 09/11/18
257		Floor finishes to Level 05	16.4days	Mon 28/01/19	Tue 19/02/19
258		50mm concrete topping to Level 06	5.3days	Wed 28/11/18	Wed 05/12/18
259		Floor finishes to Level 06	16.4days	Thu 21/02/19	Mon 18/03/19
260		50mm concrete topping to Level 07	5.3days	Mon 24/12/18	Mon 31/12/18
261		Floor finishes to Level 07	16.4days	Wed 20/03/19	Thu 11/04/19
262		50mm concrete topping to Level 08	5.3days	Fri 18/01/19	Fri 25/01/19
263		Floor finishes to Level 08	16.4days	Mon 15/04/19	Wed 08/05/19
264		50mm concrete topping to Level 09	5.3days	Wed 13/02/19	Wed 20/02/19
265		Floor finishes to Level 09	16.4days	Fri 10/05/19	Mon 03/06/19
266		50mm concrete topping to Level 10	5.3days	Mon 11/03/19	Tue 19/03/19
267		Floor finishes to Level 10	16.4days	Wed 05/06/19	Thu 27/06/19
268		50mm concrete topping to Level 11	5.3days	Fri 05/04/19	Fri 12/04/19
269		Floor finishes to Level 11	16.4days	Mon 01/07/19	Wed 24/07/19
270		50mm concrete topping to Level 12	5.3days	Wed 01/05/19	Wed 08/05/19
271		Floor finishes to Level 12	16.4days	Fri 26/07/19	Mon 19/08/19
272		**B22 Ceiling Finishes**	**209.3days**	**Mon 03/09/18**	**Fri 21/06/19**
273		Fireproofing to steel members to Level 01	17days	Mon 03/09/18	Wed 26/09/18
274		Ceiling finishes to Level 01	4.7days	Wed 26/09/18	Wed 03/10/18
275		Fireproofing to steel members to Level 02	17days	Thu 06/09/18	Mon 01/10/18
276		Ceiling finishes to Level 02	4.7days	Mon 01/10/18	Mon 08/10/18
277		Fireproofing to steel membersr to Level 03	17days	Wed 03/10/18	Fri 26/10/18
278		Ceiling finishes to Level 03	4.7days	Fri 26/10/18	Fri 02/11/18
279		Fireproofing to steel members to Level 04	17days	Mon 29/10/18	Wed 21/11/18
280		Ceiling finishes to Level 04	4.7days	Wed 21/11/18	Wed 28/11/18
281		Fireproofing to steel members to Level 05	17days	Fri 23/11/18	Tue 18/12/18
282		Ceiling finishes to Level 05	4.7days	Tue 18/12/18	Mon 24/12/18
283		Fireproofing to steel members to Level 06	17days	Wed 19/12/18	Fri 11/01/19
284		Ceiling finishes to Level 06	4.7days	Fri 11/01/19	Fri 18/01/19
285		Fireproofing to steel members to Level 07	17days	Mon 14/01/19	Wed 06/02/19
286		Ceiling finishes to Level 07	4.7days	Wed 06/02/19	Wed 13/02/19
287		Fireproofing to steel members to Level 08	17days	Fri 08/02/19	Tue 05/03/19
288		Ceiling finishes to Level 08	4.7days	Tue 05/03/19	Tue 12/03/19
289		Fireproofing to steel members to Level 09	17days	Wed 06/03/19	Fri 29/03/19
290		Ceiling finishes to Level 09	4.7days	Fri 29/03/19	Fri 05/04/19



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
291		Fireproofing to steel members to Level 10	17days	Tue 02/04/19	Thu 25/04/19
292		Ceiling finishes to Level 10	4.7days	Thu 25/04/19	Wed 01/05/19
293		Fireproofing to steel members to Level 11	17days	Fri 26/04/19	Tue 21/05/19
294		Ceiling finishes to Level 11	4.7days	Tue 21/05/19	Tue 28/05/19
295		Fireproofing to steel members to Level 12	17days	Wed 22/05/19	Fri 14/06/19
296		Ceiling finishes to Level 12	4.7days	Fri 14/06/19	Fri 21/06/19
297		**B23 Wall Finishes**	**215.1days**	**Tue 02/10/18**	**Tue 30/07/19**
298		Fireproofing and thermal bridges to Level 01	17days	Tue 02/10/18	Thu 25/10/18
299		Wall finishes to Level 01	10.6days	Thu 25/10/18	Thu 08/11/18
300		Fireproofing and thermal bridges to Level 02	17days	Fri 05/10/18	Tue 30/10/18
301		Wall finishes to Level 02	10.6days	Tue 30/10/18	Wed 14/11/18
302		Fireproofing and thermal bridges to Level 03	17days	Thu 01/11/18	Mon 26/11/18
303		Wall finishes to Level 03	10.6days	Mon 26/11/18	Mon 10/12/18
304		Fireproofing and thermal bridges to Level 04	17days	Tue 27/11/18	Thu 20/12/18
305		Wall finishes to Level 04	10.6days	Thu 20/12/18	Fri 04/01/19
306		Fireproofing and thermal bridges to Level 05	17days	Fri 21/12/18	Tue 15/01/19
307		Wall finishes to Level 05	10.6days	Tue 15/01/19	Wed 30/01/19
308		Fireproofing and thermal bridges to Level 06	17days	Thu 17/01/19	Mon 11/02/19
309		Wall finishes to Level 06	10.6days	Mon 11/02/19	Mon 25/02/19
310		Fireproofing and thermal bridges to Level 07	17days	Tue 12/02/19	Thu 07/03/19
311		Wall finishes to Level 07	10.6days	Thu 07/03/19	Fri 22/03/19
312		Fireproofing and thermal bridges to Level 08	17days	Mon 11/03/19	Wed 03/04/19
313		Wall finishes to Level 08	10.6days	Wed 03/04/19	Wed 17/04/19
314		Fireproofing and thermal bridges to Level 09	17days	Thu 04/04/19	Mon 29/04/19
315		Wall finishes to Level 09	10.6days	Mon 29/04/19	Tue 14/05/19
316		Fireproofing and thermal bridges to Level 10	17days	Tue 30/04/19	Thu 23/05/19
317		Wall finishes to Level 10	10.6days	Thu 23/05/19	Fri 07/06/19
318		Fireproofing and thermal bridges to Level 11	17days	Mon 27/05/19	Wed 19/06/19
319		Wall finishes to Level 11	10.6days	Wed 19/06/19	Wed 03/07/19
320		Fireproofing and thermal bridges to Level 12	17days	Thu 20/06/19	Mon 15/07/19
321		Wall finishes to Level 12	10.6days	Mon 15/07/19	Tue 30/07/19
322		**B3 Fittings and Equipment**	**128days**	**Tue 15/01/19**	**Fri 12/07/19**
323		**B31 Fittings and Fixtures**	**60days**	**Tue 15/01/19**	**Tue 09/04/19**
324		Fittings and Fixtures	60days	Tue 15/01/19	Tue 09/04/19
325		**B32 Equipment**	**60days**	**Tue 15/01/19**	**Tue 09/04/19**
326		Equipment	60days	Tue 15/01/19	Tue 09/04/19
327		**B33 Elevators**	**128days**	**Tue 15/01/19**	**Fri 12/07/19**
328		Elevators	128days	Tue 15/01/19	Fri 12/07/19
329		**C. Services**	**328.5days**	**Tue 01/05/18**	**Mon 05/08/19**
330		**C1. Mechanical Services**	**328.5days**	**Tue 01/05/18**	**Mon 05/08/19**
331		**C11. Plumbing and Drainage**	**328.5days**	**Tue 01/05/18**	**Mon 05/08/19**
332		Mechanical elements to Level 01	36days	Tue 01/05/18	Wed 20/06/18
333		Mechanical elements to Level 02	36days	Mon 07/05/18	Tue 26/06/18
334		Mechanical elements to Level 03	36days	Thu 31/05/18	Fri 20/07/18
335		Mechanical elements to Level 04	36days	Wed 27/06/18	Thu 16/08/18
336		Mechanical elements to Level 05	36days	Mon 23/07/18	Tue 11/09/18
337		Mechanical elements to Level 06	36days	Thu 16/08/18	Fri 05/10/18



ID	Task Mode	Task Name	Rounded Duration	Start	Finish
338		Mechanical elements to Level 07	36days	Wed 12/09/18	Thu 01/11/18
339		Mechanical elements to Level 08	36days	Mon 08/10/18	Tue 27/11/18
340		Mechanical elements to Level 09	36days	Fri 02/11/18	Mon 24/12/18
341		Mechanical elements to Level 10	36days	Wed 28/11/18	Thu 17/01/19
342		Mechanical elements to Level 11	36days	Mon 24/12/18	Tue 12/02/19
343		Mechanical elements to Level 12	36days	Fri 18/01/19	Mon 11/03/19
344		Mechanical elements other, include mechanical rooms	144days	Tue 15/01/19	Mon 05/08/19
345		**C12. Fire Protection**	**72days**	**Thu 25/04/19**	**Mon 05/08/19**
346		Fire protection services	72days	Thu 25/04/19	Mon 05/08/19
347		**C13. HVAC. Radiant floor heating.**	**328.5days**	**Tue 01/05/18**	**Mon 05/08/19**
348		HVAC to Level 01	36days	Tue 01/05/18	Wed 20/06/18
349		Radiant floor heating to Level 01	24days	Tue 10/07/18	Mon 13/08/18
350		HVAC to Level 02	36days	Mon 07/05/18	Tue 26/06/18
351		Radiant floor heating to Level 02	24days	Fri 13/07/18	Thu 16/08/18
352		HVAC to Level 03	36days	Thu 31/05/18	Fri 20/07/18
353		Radiant floor heating to Level 03	24days	Thu 09/08/18	Wed 12/09/18
354		HVAC to Level 04	36days	Wed 27/06/18	Thu 16/08/18
355		Radiant floor heating to Level 04	24days	Tue 04/09/18	Mon 08/10/18
356		HVAC to Level 05	36days	Mon 23/07/18	Tue 11/09/18
357		Radiant floor heating to Level 05	24days	Fri 28/09/18	Thu 01/11/18
358		HVAC to Level 06	36days	Thu 16/08/18	Fri 05/10/18
359		Radiant floor heating to Level 06	24days	Thu 25/10/18	Wed 28/11/18
360		HVAC to Level 07	36days	Wed 12/09/18	Thu 01/11/18
361		Radiant floor heating to Level 07	24days	Tue 20/11/18	Mon 24/12/18
362		HVAC to Level 08	36days	Mon 08/10/18	Tue 27/11/18
363		Radiant floor heating to Level 08	24days	Mon 17/12/18	Fri 18/01/19
364		HVAC to Level 09	36days	Fri 02/11/18	Mon 24/12/18
365		Radiant floor heating to Level 09	24days	Thu 10/01/19	Wed 13/02/19
366		HVAC to Level 10	36days	Wed 28/11/18	Thu 17/01/19
367		Radiant floor heating to Level 10	24days	Tue 05/02/19	Mon 11/03/19
368		HVAC to Level 11	36days	Mon 24/12/18	Tue 12/02/19
369		Radiant floor heating to Level 11	24days	Mon 04/03/19	Fri 05/04/19
370		HVAC to Level 12	36days	Fri 18/01/19	Mon 11/03/19
371		Radiant floor heating to Level 12	24days	Thu 28/03/19	Wed 01/05/19
372		Other HVAC to the rest of builduing	144days	Tue 15/01/19	Mon 05/08/19
373		**C14. Controls**	**36days**	**Fri 14/06/19**	**Mon 05/08/19**
374		DDC Controls	36days	Fri 14/06/19	Mon 05/08/19
375		**C2. Elecrtical Services**	**312days**	**Mon 07/05/18**	**Wed 17/07/19**
376		Electrical Services	312days	Mon 07/05/18	Wed 17/07/19
377		**D1. Site Work**	**144days**	**Tue 15/01/19**	**Mon 05/08/19**
378		**D11. Site Development**	**144days**	**Tue 15/01/19**	**Mon 05/08/19**
379		Site work	144days	Tue 15/01/19	Mon 05/08/19