

Sample deliverable: demonstration data. This is actual rendered output from the CPP forensic toolkit, run on a fictional project. The methodology, detectors and calculations are the production ones; the activity codes, RFI numbers, change orders and party assignments are illustrative and were chosen to exercise the full range of forensic detectors. Nothing here is a real project, a real party, or a real claim. [See all sample deliverables](#) · criticalpathpartners.ca



Forensic schedule analysis

Ontario Community College - B2 (Demo Data) — Schedule Risk Analysis



Critical Path Partners

Forensic Schedule Analysis

Schedule Risk Analysis

Ontario Community College - B2 (Demo Data)

Monte Carlo simulation results · Basis: working days

Project

Ontario Community College - B2 (Demo Data)

Data Date

2025-07-01

Generated

2026-09-01 05:02:11

Iterations

5,000

P80 Completion

2026
11-04

P50 2026-10-28 · P90 2026-11-09

Distribution

Triangular

Det. Finish

2026-09-30

Anchor disclosure. The risk network's own finish lies 12 working days after the schedule's stored forecast (2026-09-30). Every date on this page is anchored to the stored forecast and the distribution shifted by that amount; the residual means the simulation network (logic, durations and constraint floors only, with no resource levelling or progress override modelling) does not fully reproduce the scheduled record, and the spread and sensitivity rankings should be read with that limitation in view.

Executive Summary

This Monte Carlo run simulated the schedule 5,000 times. The deterministic CPM finish of 2026-09-30 was achieved or beaten in 0% of iterations, which places it near the P0 point of the simulated range. The even-odds (P50) finish is 2026-10-28, 19 working days later than the deterministic date. CPP recommends committing to the P80 date of 2026-11-04, which carries 24 working days of schedule contingency over the deterministic finish; that date holds in 80% of simulated outcomes.

The strongest single driver of finish-date uncertainty is A2550x (R6 - RFI 60 Sprinkler Diesel Pump), with correlation +0.60. The P10 to P90 spread of 15 working days is the expected uncertainty of the plan, not a per-percentile alarm.

P(Det. Finish)

0%

P50 vs Det.

+19 wd

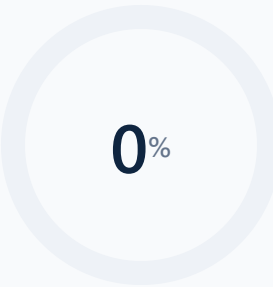
P80 Commitment

2026-11-04

Top Driver

A2550x

P(Deterministic Finish)



0%

LOW

share of iterations at or before the deterministic date

A-01

Headline Risk Metrics

Monte Carlo · 5,000 iterations

Iterations

5,000

simulation trials

Distribution

Triangular

opt 90% / ml 100% / pes 130%

P50 Finish

2026-10-28

day offset 336

P80 Finish

2026-11-04

day offset 341

P90 Finish

2026-11-09

day offset 344

Deterministic Finish

2026-09-30

single-point CPM

Three-point Inputs

90/100/130%

opt / ml / pes

Random Seed

42

reproducible run

Basis of measurement

How to read the numbers in this report

Day unit

Working days

Every day count in this deliverable is in working days. No calendar-day figure is displayed. Where a contract clause is quoted verbatim in calendar days, the computed equivalent is given in working days alongside.

Calendar

The activity's own P6 calendar

Deltas are counted on the activity's own P6 calendar via `work_day_delta`. Where no project calendar is available the documented fallback is Monday to Friday with no holidays, and that fallback is disclosed on the affected figure.

Date fields read

P6 Start and Finish columns only

Float basis

total float from the deterministic CPM pass; percentile dates come from the Monte Carlo completion-day vector, not from float

A negative number means the contractor lost time

Convention: contractor-loss: negative = the contractor lost time

Variance	How it is computed	A negative value means
Start variance	contract start - subject start	started later than contract, prep time lost
Finish variance	subject finish - contract finish	finished earlier than contract, buffer lost
Window variance	subject window - contract window	window compressed
Milestone variance	subject date - contract date	date pulled in ahead of contract

The subtraction order is deliberately opposite between start and finish, so that a negative value means lost time in both columns. Reversing either order to make them look consistent would invert the sign of every finish variance in this report.

QRAMM-Aligned Maturity Reading

five levels · informed by AACE RP 122R-22

Maturity Reading

Calibrated three-point inputs (optimistic / most-likely / pessimistic) with documented distribution choice, sufficient iteration count, and per-activity sensitivity (Pearson correlation tornado) showing which activities drive the completion-day variance. The analysis stands on its own but is still a one-off, with nothing to compare it against.

AACE 122R-22 names five levels of maturity: Level 1 Reactive, Level 2 Ad-hoc, Level 3 Centralized, Level 4 Dynamic, Level 5 Adaptive.

Reference: AACE International RP 122R-22, "Quantitative Risk Analysis Maturity Model" (QRAMM), rev. October 13 2022 (editorial revision April 22 2024); TCM Framework 7.6 Risk Management, 3.3 Investment Decision Making.

Level

2 / 5

Iterations

5,000

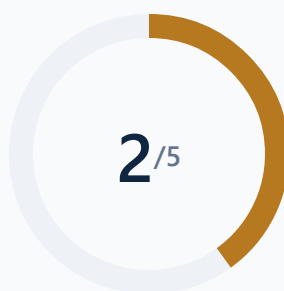
Drivers Ranked

282

Scenarios

1

Maturity Level



LEVEL 2 · AD-HOC

● Evidence In This Run

- Iteration count: 5,000
- Baseline P50 / P80 produced: 2026-10-28 / 2026-11-04
- Three-point inputs: opt 90% / ml 100% / pes 130%
- Distribution: Triangular
- Per-activity sensitivity: 282 ranked drivers (Pearson correlation tornado)
- Critical-path flagging applied to sensitivity rows

● Gaps To Next Level

- Add at least one of: a mitigation scenario (baseline vs mitigated comparison), or a quantified risk register giving each risk a probability of occurring and a distribution of multiplicative impact factors mapped to the activities it affects (Hulett risk-driver method, AACE RP 57R-09).
- No convergence diagnostics run

● Scope Of This Reading

This is a QRAMM-aligned reading, not a QRAMM score. AACE 122R-22 assesses the quantitative-risk capability of an organization: the RP states it is not a maturity model for assessing the depth of capability for any particular QRA method, and that it provides guidelines rather than a standard. What is scored here is one simulation run, placed by CPP on the five named levels of the RP so the reader can see how far this deliverable goes. The level criteria are CPP's, written in terms of evidence the run carries, and are not verbatim RP text. Reference: AACE International RP 122R-22, "Quantitative Risk Analysis Maturity Model" (QRAMM), rev. October 13 2022 (editorial revision April 22 2024); TCM Framework 7.6 Risk Management, 3.3 Investment Decision Making.

Percentile	Completion date	Day offset	Δ from deterministic
P10	2026-10-19	329	+12d
P25	2026-10-22	332	+15d
P50	2026-10-28	336	+19d
P75	2026-11-03	340	+23d
P80	2026-11-04	341	+24d
P85	2026-11-05	342	+25d
P90	2026-11-09	344	+27d
P95	2026-11-11	346	+29d

Δ is measured against the single-point deterministic CPM finish. A later percentile (red) is downside schedule risk, an earlier one upside. The color flags direction relative to the deterministic estimate. The P10–P90 spread itself is expected uncertainty, not a per-percentile alarm.

What these dates mean

1. **Commitment date:** carry the P80 date, 2026-11-04. It holds in 80% of simulated outcomes. That implies 24 working days of schedule contingency over the deterministic finish of 2026-09-30.
2. **P50, 2026-10-28:** the even-odds date. Half the iterations finish later. Quote it as an expectation, not a commitment.
3. **Deterministic finish, 2026-09-30:** the single-point CPM date. The simulation achieves it in only 0% of iterations, so treat it as an optimistic bound, not a forecast.

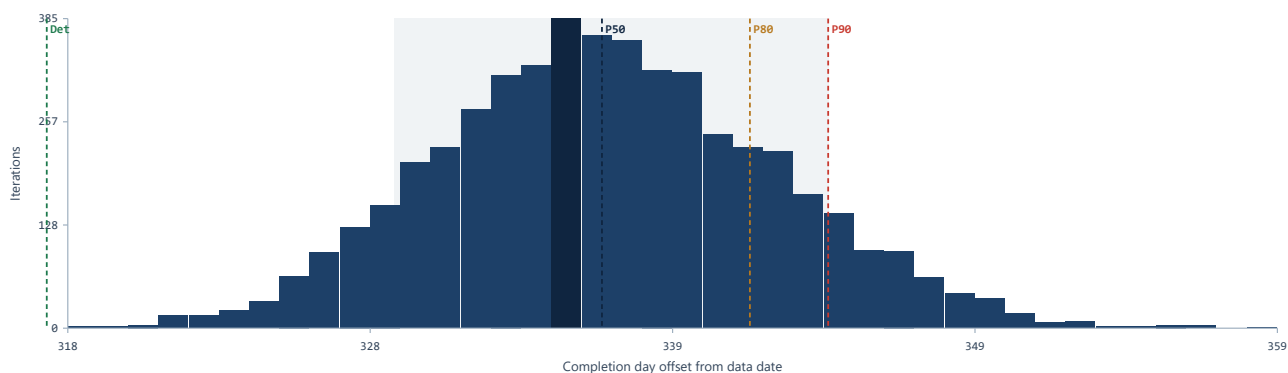
A-04

Completion-day Distribution

histogram + cumulative S-curve · 5,000 samples

Completion-day histogram

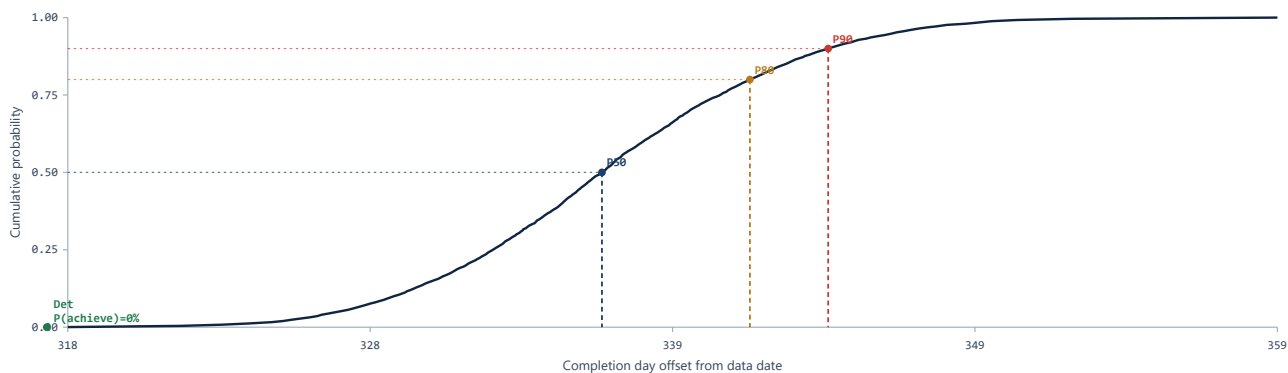
40 bins · n=5,000



■ Iteration count per bin ■ P10-P90 band ■ Deterministic ■ P50 ■ P80 ■ P90

Cumulative S-curve

P50 / P80 / P90 annotated



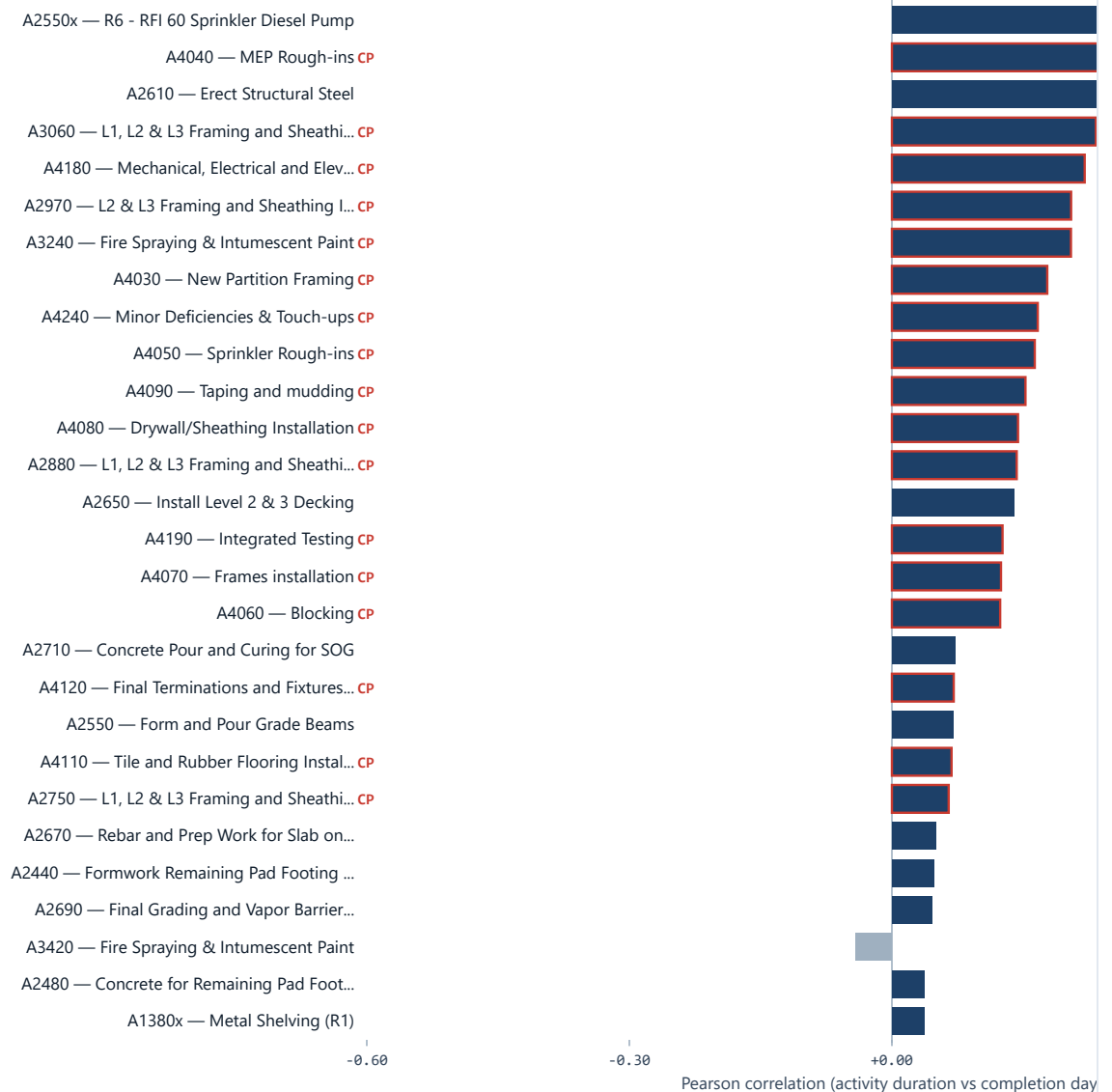
■ Cumulative probability (S-curve) ■ P50 ■ P80 ■ P90 ■ Deterministic callout

Probability of achieving the deterministic date 2026-09-30: **0%** of 5,000 iterations finished on or before it.

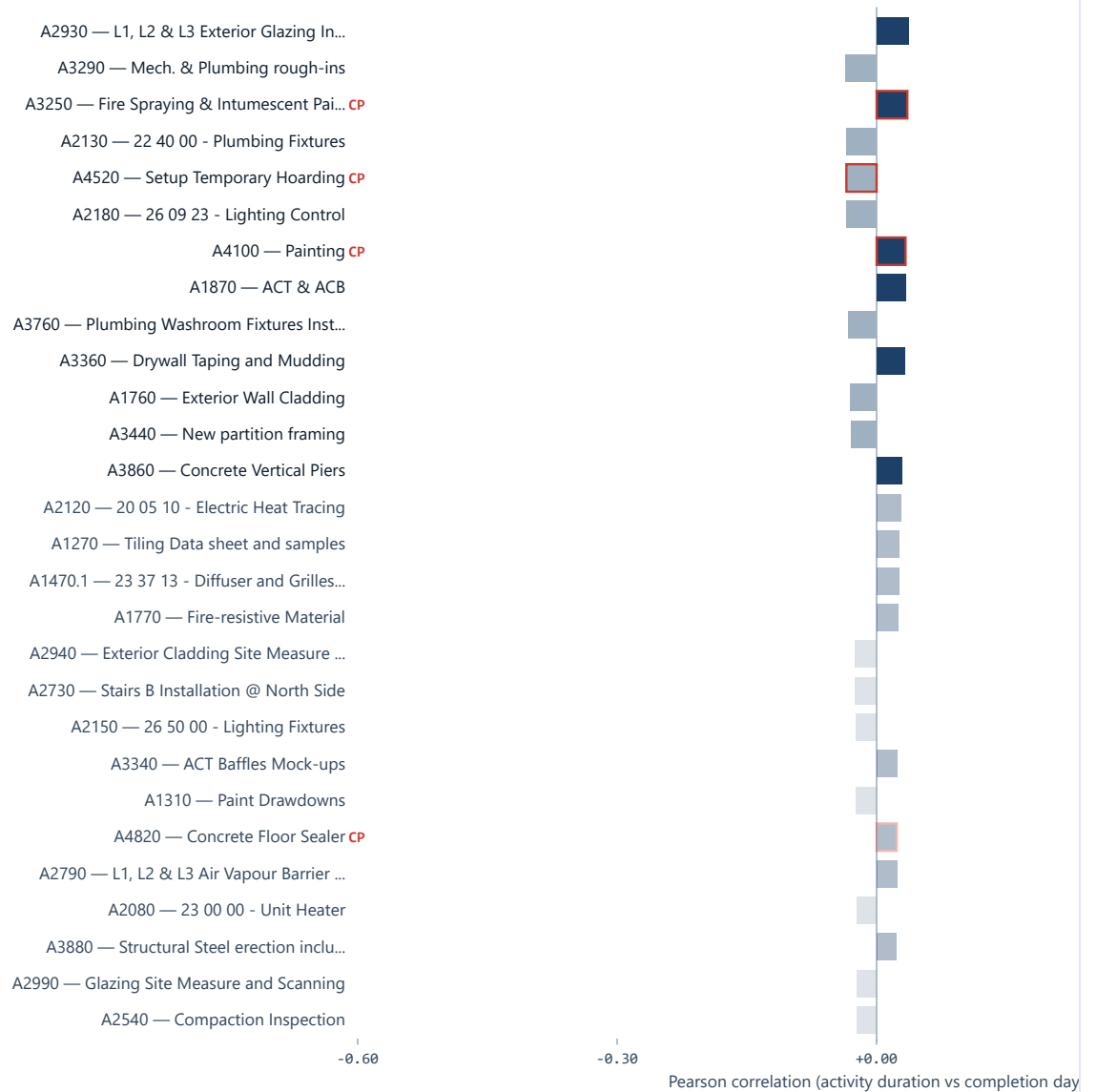
Pearson correlation — activity duration vs completion day

282 ranked drivers

drivers 1-28 of 282 (ranked by |correlation|)



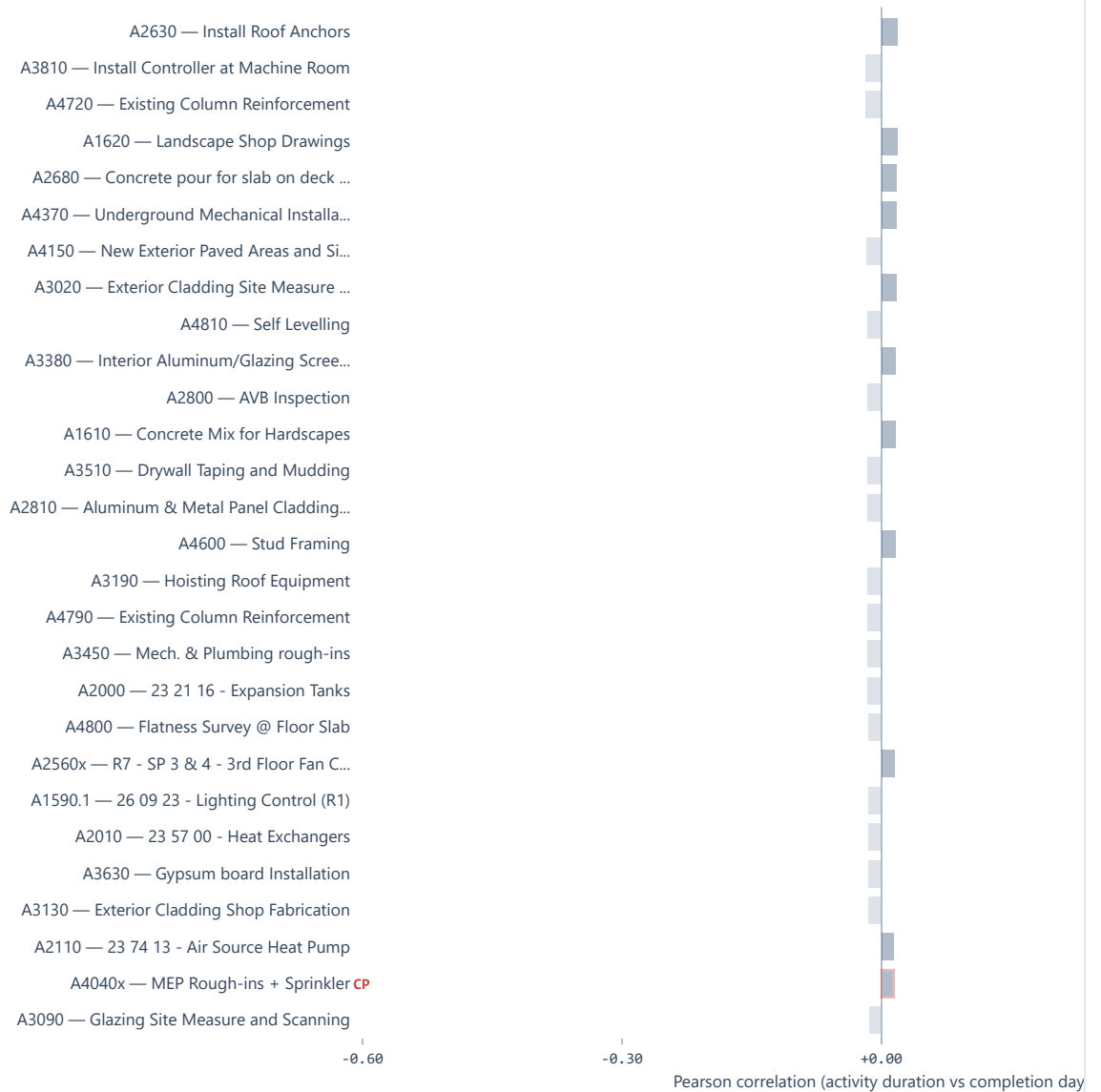
drivers 29–56 of 282 (ranked by |correlation|)



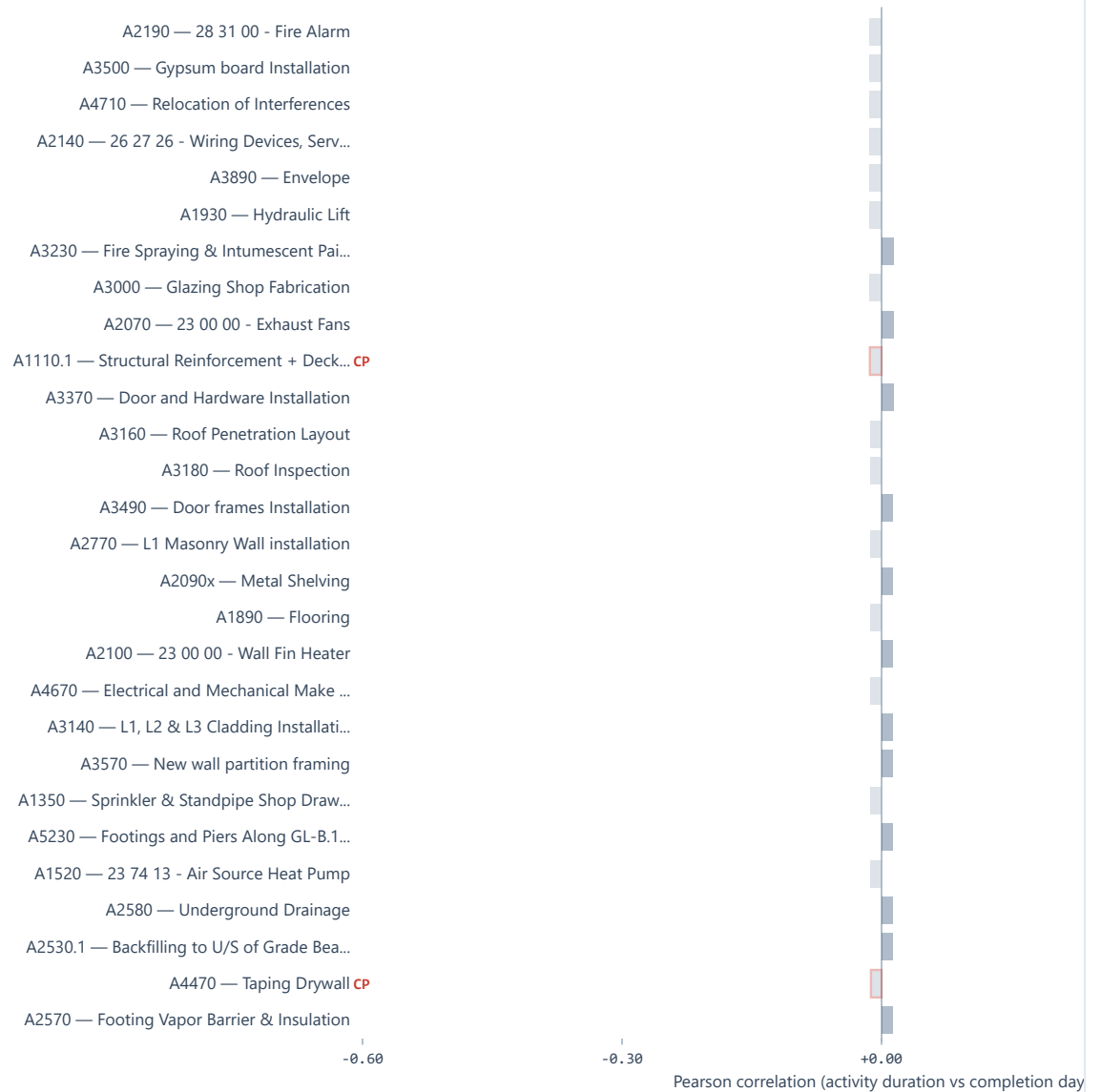
drivers 57-84 of 282 (ranked by |correlation|)



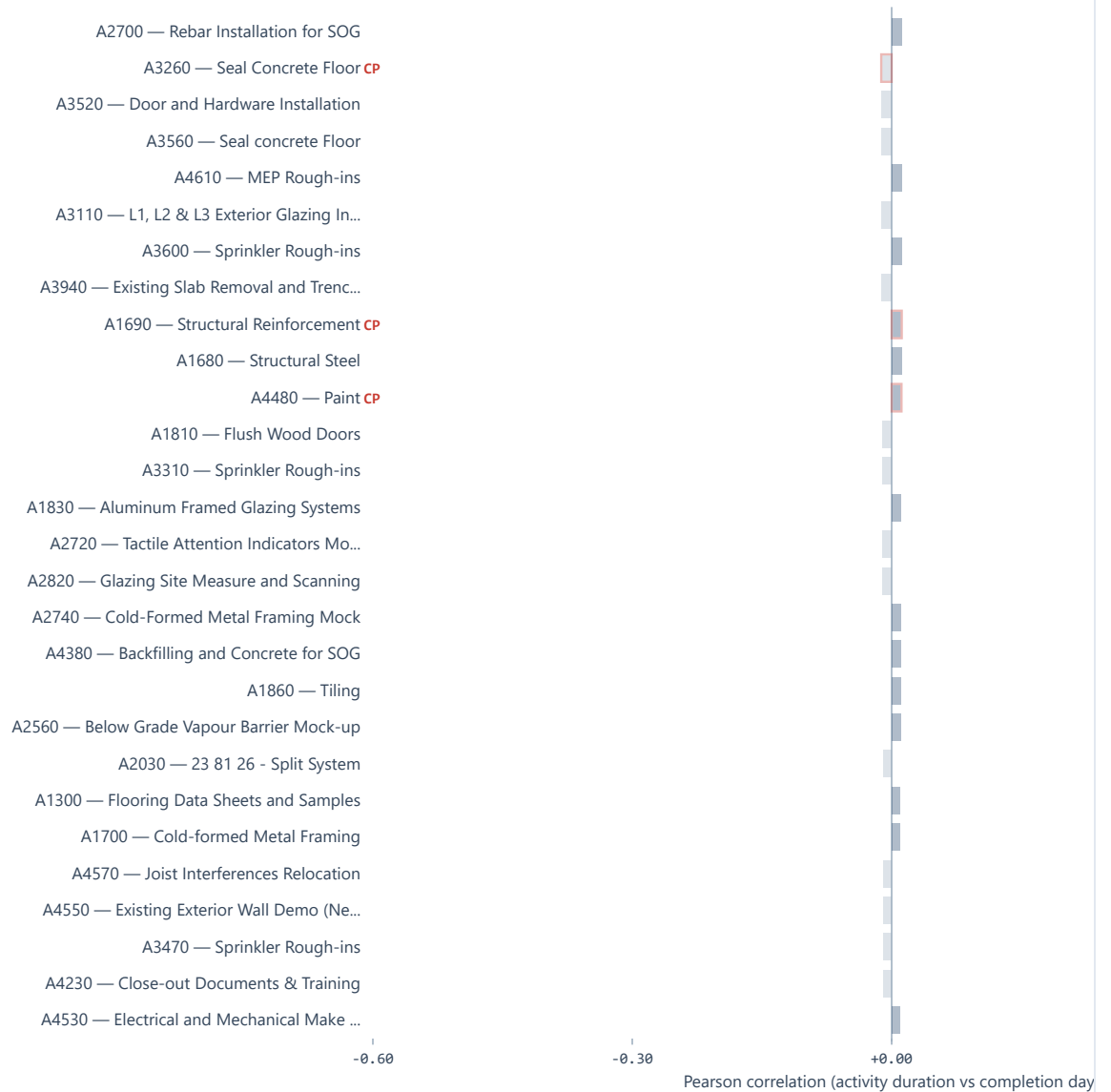
drivers 85-112 of 282 (ranked by |correlation|)



drivers 113-140 of 282 (ranked by |correlation|)



drivers 141-168 of 282 (ranked by |correlation|)



drivers 169–196 of 282 (ranked by |correlation|)



drivers 197-224 of 282 (ranked by |correlation|)



drivers 225-252 of 282 (ranked by |correlation|)



drivers 253–280 of 282 (ranked by |correlation|)



drivers 281–282 of 282 (ranked by |correlation|)



- Positive correlation (longer duration → later finish)
- Negative correlation
- On critical path
- Below significance threshold (shaded: noise, not signal)

At 5,000 iterations, a |correlation| below the two-sided 95% significance threshold of $1.96/\sqrt{n} \approx 0.028$ is not statistically distinguishable from zero. 241 of 282 drivers fall below the threshold and are shaded; they remain plotted because the register is never truncated, but their order within the shaded band is noise, not ranking.

A-06

Ranked Sensitivity Drivers

282 drivers · all listed

SENS

Ranked duration-sensitivity drivers (Pearson correlation)

282 drivers — all listed

Export CSV

Rank	Code	Activity	Planned dur.	Correlation	Impact
1	A2550x	R6 - RFI 60 Sprinkler Diesel Pump	41.0d	+0.599	24.55
2	A4040 CP	MEP Rough-ins	23.0d	+0.326	7.50
3	A2610	Erect Structural Steel	20.0d	+0.284	5.67
4	A2130	22 40 00 - Plumbing Fixtures	100.0d	-0.035	3.52
5	A3060 CP	L1, L2 & L3 Framing and Sheathing Installation	15.0d	+0.233	3.49
6	A2180	26 09 23 - Lighting Control	100.0d	-0.034	3.42
7	A4180 CP	Mechanical, Electrical and Elevator Commissioning	15.0d	+0.220	3.30
8	A2110	23 74 13 - Air Source Heat Pump	224.0d	+0.014 [†]	3.19
9	A3240 CP	Fire Spraying & Intumescent Paint	15.0d	+0.204	3.06
10	A2970 CP	L2 & L3 Framing and Sheathing Installation	14.0d	+0.204	2.86
11	A2120	20 05 10 - Electric Heat Tracing	100.0d	+0.028 [†]	2.77
12	A2150	26 50 00 - Lighting Fixtures	100.0d	-0.024 [†]	2.42

Rank	Code	Activity	Planned dur.	Correlation	Impact
13	A4030 CP	New Partition Framing	13.0d	+0.177	2.30
14	A4050 CP	Sprinkler Rough-ins	13.0d	+0.163	2.12
15	A1760	Exterior Wall Cladding	60.0d	-0.031	1.85
16	A1990	23 21 16 - Air Separator	91.0d	-0.020 [†]	1.84
17	A4240 CP	Minor Deficiencies & Touch-ups	11.0d	+0.166	1.83
18	A2080	23 00 00 - Unit Heater	78.0d	-0.023 [†]	1.78
19	A4090 CP	Taping and mudding	10.0d	+0.152	1.52
20	A4080 CP	Drywall/Sheathing Installation	10.0d	+0.144	1.44
21	A2880 CP	L1, L2 & L3 Framing and Sheathing Installation	10.0d	+0.142	1.42
22	A2000	23 21 16 - Expansion Tanks	91.0d	-0.016 [†]	1.42
23	A2650	Install Level 2 & 3 Decking	10.0d	+0.139	1.39
24	A1930	Hydraulic Lift	101.0d	-0.014 [†]	1.38
25	A2010	23 57 00 - Heat Exchangers	91.0d	-0.015 [†]	1.34
26	A2140	26 27 26 - Wiring Devices, Service Poles, & Floor Boxes	91.0d	-0.014 [†]	1.27
27	A4190 CP	Integrated Testing	10.0d	+0.126	1.26
28	A2190	28 31 00 - Fire Alarm	82.0d	-0.014 [†]	1.15
29	A2100	23 00 00 - Wall Fin Heater	90.0d	+0.013 [†]	1.15

Rank	Code	Activity	Planned dur.	Correlation	Impact
30	A1870	ACT & ACB	30.0d	+0.033	1.00
31	A4070 CP	Frames installation	8.0d	+0.124	1.00
32	A2070	23 00 00 - Exhaust Fans	72.0d	+0.014 [†]	0.98
33	A2930	L1, L2 & L3 Exterior Glazing Installation (W07a, W07b, W01, W02 & W03)	26.0d	+0.037	0.96
34	A2030	23 81 26 - Split System	97.0d	-0.010 [†]	0.96
35	A4060 CP	Blocking	7.0d	+0.123	0.86
36	A1830	Aluminum Framed Glazing Systems	80.0d	+0.011 [†]	0.85
37	A1810	Flush Wood Doors	75.0d	-0.011 [†]	0.82
38	A1890	Flooring	61.0d	-0.013 [†]	0.79
39	A2020	22 33 00 - Electric Domestic Water Heaters	91.0d	+0.008 [†]	0.72
40	A1330	Fall Arrest Anchors and Horizontal Lines	31.0d	-0.022 [†]	0.67
41	A2040	22 13 29 - Sump Pumps	28.0d	+0.022 [†]	0.62
42	A1470.1	23 37 13 - Diffuser and Grilles Shop Drawings (R1)	24.0d	+0.026 [†]	0.62
43	2170	26 50 00 - Emergency Lighting & Exit Signs	91.0d	-0.006 [†]	0.55
44	A1800	Interior Aluminum Screens	90.0d	+0.006 [†]	0.53
45	A1770	Fire-resistive Material	21.0d	+0.025 [†]	0.53

Rank	Code	Activity	Planned dur.	Correlation	Impact
46	A1710	Misc. Metals	80.0d	+0.007 [†]	0.52
47	A1840	Finished Hardware	91.0d	-0.005 [†]	0.48
48	A1720	Millwork	51.0d	+0.009 [†]	0.48
49	A2560x	R7 - SP 3 & 4 - 3rd Floor Fan Coil Units Scope	30.0d	+0.015 [†]	0.45
50	A1790	Hollow Metal Doors	61.0d	+0.007 [†]	0.45
51	A2060	23 37 13 - Diffuser and Grilles	100.0d	-0.004 [†]	0.45
52	A2420	Form and Pour North Exit Stair	23.0d	+0.019 [†]	0.43
53	A1380x	Metal Shelving (R1)	10.0d	+0.037	0.37
54	A2730	Stairs B Installation @ North Side	15.0d	-0.025 [†]	0.37
55	A2710	Concrete Pour and Curing for SOG	5.0d	+0.072	0.36
56	A3290	Mech. & Plumbing rough-ins	10.0d	-0.036	0.36
57	A1780	Hollow Metal Frames	41.0d	+0.009 [†]	0.36
58	A4120 CP	Final Terminations and Fixtures Installation	5.0d	+0.071	0.35
59	A1690 CP	Structural Reinforcement	30.0d	+0.012 [†]	0.35
60	A2550	Form and Pour Grade Beams	5.0d	+0.070	0.35
61	A3890	Envelope	25.0d	-0.014 [†]	0.34
62	A3880	Structural Steel erection including expansion plates	15.0d	+0.023 [†]	0.34

Rank	Code	Activity	Planned dur.	Correlation	Impact
63	A4110 CP	Tile and Rubber Flooring Installation	5.0d	+0.068	0.34
64	A2050	23 25 00 - Water Treatment	100.0d	-0.003 [†]	0.34
65	A4150	New Exterior Paved Areas and Sidewalks	20.0d	-0.017 [†]	0.34
66	A1940	Sprinkler & Standpipe Shop Drawings	16.0d	-0.020 [†]	0.32
67	A2750 CP	L1, L2 & L3 Framing and Sheathing Installation	5.0d	+0.065	0.32
68	A3360	Drywall Taping and Mudding	10.0d	+0.032	0.32
69	A3140	L1, L2 & L3 Cladding Installation (EW2, EW2A)	25.0d	+0.013 [†]	0.32
70	A3840	Elevator Testing and Commissioning	15.0d	+0.021 [†]	0.31
71	A1860	Tiling	31.0d	+0.010 [†]	0.31
72	A3440	New partition framing	10.0d	-0.029	0.29
73	A3130	Exterior Cladding Shop Fabrication	20.0d	-0.014 [†]	0.29
74	A3000	Glazing Shop Fabrication	21.0d	-0.014 [†]	0.29
75	A4730	Steel Joist Reinforcement Installation	15.0d	-0.019 [†]	0.28
76	A2090x	Metal Shelving	21.0d	+0.013 [†]	0.27
77	A1270	Tiling Data sheet and samples	10.0d	+0.026 [†]	0.26
78	A3210	Electrical and Mechanical Room	11.0d	-0.022 [†]	0.24
79	A1310	Paint Drawdowns	10.0d	-0.023 [†]	0.23

Rank	Code	Activity	Planned dur.	Correlation	Impact
80	A1680	Structural Steel	20.0d	+0.012 [†]	0.23
81	A1970	23 21 23 - Pumps	100.0d	+0.002 [†]	0.22
82	A3280	New partition framing	10.0d	-0.021 [†]	0.21
83	A3650	Door and Hardware Installation	10.0d	+0.021 [†]	0.21
84	A3420	Fire Spraying & Intumescent Paint	5.0d	-0.042	0.21
85	A1200	Hollow Metal Frames & Doors Shop Drawings	10.0d	-0.020 [†]	0.20
86	A1620	Landscape Shop Drawings	11.0d	+0.018 [†]	0.20
87	A4160	Landscape Installations	10.0d	-0.020 [†]	0.20
88	A1530.1	20 05 10 - Electric Heat Tracing (R1)	10.0d	+0.020 [†]	0.20
89	A1740	TPO Roofing (Bridge)	30.0d	+0.006 [†]	0.19
90	A1950	23 82 19 - Fan Coil Units	109.0d	-0.002 [†]	0.19
91	A2580	Underground Drainage	15.0d	+0.012 [†]	0.19
92	A1320	Washroom accessories and Partitions Shop Drawings	10.0d	-0.018 [†]	0.18
93	A3690	Misc. Metals installation	30.0d	-0.006 [†]	0.18
94	A3220	Mech. and Elec. Equipment Installation	10.0d	+0.018 [†]	0.18
95	A2630	Install Roof Anchors	10.0d	+0.018 [†]	0.18
96	A4720	Existing Column Reinforcement	10.0d	-0.018 [†]	0.18

Rank	Code	Activity	Planned dur.	Correlation	Impact
97	A1610	Concrete Mix for Hardscapes	11.0d	+0.016 ⁺	0.18
98	A4370	Underground Mechanical Installation (DCW, Sprinkler)	10.0d	+0.017 ⁺	0.17
99	A2960	L2 & L3 Cladding Installation (EW2)	20.0d	-0.008 ⁺	0.17
100	A1920	Fall Arrest Anchors and Horizontal Lines	60.0d	-0.003 ⁺	0.17
101	A2860	Exterior Cladding Shop Fabrication	20.0d	-0.008 ⁺	0.17
102	A3510	Drywall Taping and Mudding	10.0d	-0.016 ⁺	0.16
103	A3760	Plumbing Washroom Fixtures Installation	5.0d	-0.032	0.16
104	A3450	Mech. & Plumbing rough-ins	10.0d	-0.016 ⁺	0.16
105	A1590.1	26 09 23 - Lighting Control (R1)	10.0d	-0.015 ⁺	0.15
106	A2840	L1, L2, L3 Exterior Glazing Installation (W05)	21.0d	-0.007 ⁺	0.15
107	A2440	Formwork Remaining Pad Footing (Ramp)	3.0d	+0.048	0.14
108	A1820	Coiling Doors	100.0d	+0.001 ⁺	0.14
109	A3860	Concrete Vertical Piers	5.0d	+0.029	0.14
110	A4710	Relocation of Interferences	10.0d	-0.014 ⁺	0.14
111	A1980	23 25 00 - Buffer Tanks	131.0d	+0.001 ⁺	0.14
112	A2690	Final Grading and Vapor Barrier for SOG	3.0d	+0.046	0.14

Rank	Code	Activity	Planned dur.	Correlation	Impact
113	A1360.2	23 82 19 - Fan Coil Units (R2)	18.0d	+0.008 [†]	0.14
114	A2950	Exterior Cladding Shop Fabrication	20.0d	-0.007 [†]	0.14
115	A3570	New wall partition framing	10.0d	+0.013 [†]	0.13
116	A1350	Sprinkler & Standpipe Shop Drawings	10.0d	-0.013 [†]	0.13
117	A1520	23 74 13 - Air Source Heat Pump	10.0d	-0.012 [†]	0.12
118	A1500	23 52 16 - Heating Boilers	26.0d	-0.005 [†]	0.12
119	A3520	Door and Hardware Installation	10.0d	-0.012 [†]	0.12
120	A4500 CP	CNC Machine Relocation (Cash Allowance)	13.0d	+0.009 [†]	0.12
121	A1540.1	22 40 00 - Plumbing Fixtures (R1)	19.0d	-0.006 [†]	0.12
122	A3600	Sprinkler Rough-ins	10.0d	+0.012 [†]	0.12
123	A3100	Glazing Shop Fabrication	21.0d	+0.006 [†]	0.12
124	A2790	L1, L2 & L3 Air Vapour Barrier Installation	5.0d	+0.023 [†]	0.12
125	A4810	Self Levelling	7.0d	-0.016 [†]	0.12
126	A3330	Door frames Installation	5.0d	+0.022 [†]	0.11
127	A2160	27 10 00 - Structural Cabling System (Fiber Optic Cable)	194.0d	-0.001 [†]	0.11
128	A1700	Cold-formed Metal Framing	11.0d	+0.010 [†]	0.11
129	A3310	Sprinkler Rough-ins	10.0d	-0.011 [†]	0.11

Rank	Code	Activity	Planned dur.	Correlation	Impact
130	A4690	Electrical Fixtures	5.0d	-0.021 [†]	0.11
131	A1170	Air Barrier System Data Sheet and Mockup	5.0d	+0.021 [†]	0.10
132	A3170	Install Built-up Roof	30.0d	+0.003 [†]	0.10
133	A3630	Gypsum board Installation	7.0d	-0.014 [†]	0.10
134	A4100 CP	Painting	3.0d	+0.033	0.10
135	A2670	Rebar and Prep Work for Slab on Deck	2.0d	+0.050	0.10
136	A1300	Flooring Data Sheets and Samples	10.0d	+0.010 [†]	0.10
137	A4220	Final Cleaning	5.0d	-0.020 [†]	0.10
138	A2890	L1 Masonry Wall Installation	5.0d	+0.019 [†]	0.10
139	A3470	Sprinkler Rough-ins	10.0d	-0.009 [†]	0.09
140	A3350	Gypsum board Installation	5.0d	-0.019 [†]	0.09
141	A3390	Interior Aluminum/Glazing Screens Installation	5.0d	+0.019 [†]	0.09
142	A3640	Drywall Taping and Mudding	10.0d	-0.009 [†]	0.09
143	A2210	Landscape (unit pavers, furniture, etc)	60.0d	-0.001 [†]	0.09
144	A4470 CP	Taping Drywall	7.0d	-0.012 [†]	0.09
145	A2090	23 52 16 - Heating Boilers	100.0d	+0.001 [†]	0.08
146	A1460.1	23 25 00 - Water Treatment (R1)	17.0d	+0.005 [†]	0.08

Rank	Code	Activity	Planned dur.	Correlation	Impact
147	A3190	Hoisting Roof Equipment	5.0d	-0.016 [†]	0.08
148	A4790	Existing Column Reinforcement	5.0d	-0.016 [†]	0.08
149	A1480.1	23 00 00 - Exhaust Fans (R1)	15.0d	+0.005 [†]	0.08
150	A1260	Stud framing and Gypsum Board Data Sheets	10.0d	+0.008 [†]	0.08
151	A3270	New Stair A Installation	10.0d	+0.008 [†]	0.08
152	A1210	Interior Aluminum Screen	18.0d	+0.004 [†]	0.07
153	A4040x CP	MEP Rough-ins + Sprinkler	5.0d	+0.014 [†]	0.07
154	A3590	Electrical, FA & Comms rough-ins	10.0d	-0.007 [†]	0.07
155	A3500	Gypsum board Installation	5.0d	-0.014 [†]	0.07
156	A3820	Rails and Elevator Car installation	10.0d	-0.007 [†]	0.07
157	A3850	Foundations	116.0d	+0.001 [†]	0.07
158	A4420 CP	Steel Joist Reinforcement Installation	8.0d	-0.008 [†]	0.07
159	A3370	Door and Hardware Installation	5.0d	+0.013 [†]	0.07
160	A4450 CP	Plywood Blocking	3.0d	-0.021 [†]	0.06
161	A5230	Footings and Piers Along GL-B.1 (Successor to CO-005)	5.0d	+0.012 [†]	0.06
162	A3110	L1, L2 & L3 Exterior Glazing Installation (W09a, W09b)	5.0d	-0.012 [†]	0.06
163	A1130	Misc. Metals Shop Drawings	10.0d	-0.006 [†]	0.06

Rank	Code	Activity	Planned dur.	Correlation	Impact
164	A3580	Mech. & Plumbing rough-ins	10.0d	+0.006 [†]	0.06
165	A3940	Existing Slab Removal and Trenching	5.0d	-0.012 [†]	0.06
166	A2920	Glazing Shop Fabrication	19.0d	-0.003 [†]	0.06
167	A3770	Corner Guards and Wall Protection Installation	3.0d	-0.019 [†]	0.06
168	A3540	Painting	3.0d	-0.019 [†]	0.06
169	A1900	Paint Drawdowns	11.0d	+0.005 [†]	0.05
170	A4580	New Columns Installation	10.0d	+0.005 [†]	0.05
171	A3030	Exterior Cladding Shop Fabrication	20.0d	-0.003 [†]	0.05
172	A3460	Electrical, FA & Comms rough-ins	10.0d	-0.005 [†]	0.05
173	A4380	Backfilling and Concrete for SOG	5.0d	+0.010 [†]	0.05
174	A2570	Footing Vapor Barrier & Insulation	4.0d	+0.012 [†]	0.05
175	A4600	Stud Framing	3.0d	+0.016 [†]	0.05
176	A4570	Joist Interferences Relocation	5.0d	-0.010 [†]	0.05
177	A4550	Existing Exterior Wall Demo (New Building Must be Erected and Enclosed)	5.0d	-0.010 [†]	0.05
178	A3260 CP	Seal Concrete Floor	4.0d	-0.012 [†]	0.05
179	A4610	MEP Rough-ins	4.0d	+0.012 [†]	0.05
180	A4230	Close-out Documents & Training	5.0d	-0.009 [†]	0.05

Rank	Code	Activity	Planned dur.	Correlation	Impact
181	A2900	Air Vapor Barrier Installation	5.0d	-0.009 [†]	0.04
182	A4010	Underground Plumbing Rough-ins	10.0d	-0.004 [†]	0.04
183	A4540	Interior Demolition	10.0d	+0.004 [†]	0.04
184	A4650	Painting	2.0d	-0.021 [†]	0.04
185	A1110.1 CP	Structural Reinforcement + Decking Shop Drawings (R1)	3.0d	-0.013 [†]	0.04
186	A1670	Masonry and Mortar	5.0d	+0.008 [†]	0.04
187	A1180	Exterior Wall Cladding Shop Drawings	18.0d	+0.002 [†]	0.04
188	A4770	Concrete Slab Infill	11.0d	-0.004 [†]	0.04
189	A4590 CP	Steel Joist Reinforcement Installation	10.0d	+0.004 [†]	0.04
190	A3490	Door frames Installation	3.0d	+0.013 [†]	0.04
191	A3660	Interior Glazing Installation	5.0d	-0.008 [†]	0.04
192	A2480	Concrete for Remaining Pad Footings (Ramp)	1.0d	+0.037	0.04
193	A1850	Stud framing & gypsum board	6.0d	+0.006 [†]	0.04
194	A3870	Removal of Existing Facade for Tie In	2.0d	-0.018 [†]	0.04
195	A4170	Fire Alarm Verification	10.0d	-0.004 [†]	0.04
196	A3250 CP	Fire Spraying & Intumescent Paint Inspection	1.0d	+0.035	0.04
197	A1250	Finished Hardware Schedule	10.0d	-0.004 [†]	0.04

Rank	Code	Activity	Planned dur.	Correlation	Impact
198	A3620	Door frames Installation	5.0d	-0.007 [†]	0.04
199	A2680	Concrete pour for slab on deck level 2 & 3	2.0d	+0.017 [†]	0.03
200	A4520 CP	Setup Temporary Hoarding	1.0d	-0.035	0.03
201	A4480 CP	Paint	3.0d	+0.011 [†]	0.03
202	A1910	Washroom accessories and Partitions	26.0d	+0.001 [†]	0.03
203	A4460 CP	Drywall Installation	5.0d	+0.007 [†]	0.03
204	A3200	Roof Anchor System Installation	5.0d	+0.007 [†]	0.03
205	A3150	Roof Parapet Framing	5.0d	-0.006 [†]	0.03
206	A4800	Flatness Survey @ Floor Slab	2.0d	-0.015 [†]	0.03
207	A3720	Ceiling/Wall Fixtures Installation	10.0d	-0.003 [†]	0.03
208	A3530	Interior Glazing Installation	5.0d	+0.006 [†]	0.03
209	A4780	New Columns Installation	5.0d	+0.006 [†]	0.03
210	A3740	Millwork Installation	5.0d	-0.006 [†]	0.03
211	A4530	Electrical and Mechanical Make Safe	3.0d	+0.009 [†]	0.03
212	A3070	L1, L2 & L3 Air Vapor Barrier Installation	6.0d	-0.005 [†]	0.03
213	A4620	Plywood Blocking	3.0d	+0.009 [†]	0.03
214	A3830	Power to controller, Phone lines and Comms	5.0d	-0.005 [†]	0.03

Rank	Code	Activity	Planned dur.	Correlation	Impact
215	A3160	Roof Penetration Layout	2.0d	-0.013 [†]	0.03
216	A2770	L1 Masonry Wall installation	2.0d	-0.013 [†]	0.03
217	A4510	Metal Shelving Installation	3.0d	-0.008 [†]	0.03
218	A4670	Electrical and Mechanical Make Safe	2.0d	-0.013 [†]	0.03
219	A2940	Exterior Cladding Site Measure and Scanning	1.0d	-0.025 [†]	0.02
220	A3900	Interior M&E Rough in	10.0d	+0.002 [†]	0.02
221	A3340	ACT Baffles Mock-ups	1.0d	+0.024 [†]	0.02
222	A4820 CP	Concrete Floor Sealer	1.0d	+0.023 [†]	0.02
223	A4760	Trench Backfill	5.0d	-0.005 [†]	0.02
224	A3040	L2 & L3 Cladding Installation (EW2)	20.0d	+0.001 [†]	0.02
225	A3050	Horizontal Shading Louvers	5.0d	-0.005 [†]	0.02
226	A2990	Glazing Site Measure and Scanning	1.0d	-0.023 [†]	0.02
227	A2540	Compaction Inspection	1.0d	-0.023 [†]	0.02
228	A3910	Interior Finishes	1.0d	-0.022 [†]	0.02
229	A1140	Millwork Shop Drawings	10.0d	+0.002 [†]	0.02
230	A2870	L1, L2 & L3 Cladding Installation (EW2a)	20.0d	-0.001 [†]	0.02
231	A2200	Concrete for Hardscape	5.0d	-0.004 [†]	0.02
232	A3550	Fire Spraying & Intumescent Paint	5.0d	-0.004 [†]	0.02

Rank	Code	Activity	Planned dur.	Correlation	Impact
233	A3810	Install Controller at Machine Room	1.0d	-0.018 [†]	0.02
234	A2830	Glazing Shop Fabrication	19.0d	-0.001 [†]	0.02
235	A3010	L2 & L3 Exterior Glazing Installation (W08a, W08b)	5.0d	-0.003 [†]	0.02
236	A3300	Electrical, FA & Comms rough-ins	10.0d	+0.002 [†]	0.02
237	A3020	Exterior Cladding Site Measure and Scanning	1.0d	+0.017 [†]	0.02
238	A3380	Interior Aluminum/Glazing Screens Mock-up	1.0d	+0.016 [†]	0.02
239	A2800	AVB Inspection	1.0d	-0.016 [†]	0.02
240	A2810	Aluminum & Metal Panel Cladding Mock-up	1.0d	-0.016 [†]	0.02
241	A4680	Interior Demolition	6.0d	-0.003 [†]	0.02
242	A3090	Glazing Site Measure and Scanning	1.0d	-0.014 [†]	0.01
243	A2660	Install Temporary Hoarding for Slab on Deck	5.0d	+0.003 [†]	0.01
244	A3230	Fire Spraying & Intumescent Paint Mock-up	1.0d	+0.014 [†]	0.01
245	A3180	Roof Inspection	1.0d	-0.013 [†]	0.01
246	A2530.1	Backfilling to U/S of Grade Beams (GL AA)	1.0d	+0.012 [†]	0.01
247	A1730	Built-up Roofing	31.0d	-0.000 [†]	0.01

Rank	Code	Activity	Planned dur.	Correlation	Impact
248	A2700	Rebar Installation for SOG	1.0d	+0.012 [†]	0.01
249	A3560	Seal concrete Floor	1.0d	-0.012 [†]	0.01
250	A2590	Backfilling to U/S of SOG	5.0d	+0.002 [†]	0.01
251	A1960	23 74 13 - Air Handling Units	180.0d	+0.000 [†]	0.01
252	A3320	Blocking Installation	3.0d	-0.004 [†]	0.01
253	A2720	Tactile Attention Indicators Mock-up	1.0d	-0.010 [†]	0.01
254	A2820	Glazing Site Measure and Scanning	1.0d	-0.010 [†]	0.01
255	A4640	Taping Drywall	5.0d	+0.002 [†]	0.01
256	A2740	Cold-Formed Metal Framing Mock	1.0d	+0.010 [†]	0.01
257	A2560	Below Grade Vapour Barrier Mock-up	1.0d	+0.010 [†]	0.01
258	A4490 CP	Finishes	5.0d	-0.002 [†]	0.01
259	A2780	Above Grade Vapour Mock-up	1.0d	-0.009 [†]	0.01
260	A3730	Millwork Mock-up	1.0d	+0.009 [†]	0.01
261	A3700	Tiling & Rubber & Carpet Flooring Mock-up	1.0d	-0.009 [†]	0.01
262	A2760	Masonry Mock-up	1.0d	+0.008 [†]	0.01
263	A3680	Misc. Metals Mock-up	1.0d	-0.008 [†]	0.01
264	A3400	Paint Mock-up	3.0d	-0.002 [†]	0.01
265	A2620	Structural Steel Inspection	1.0d	+0.006 [†]	0.01

Rank	Code	Activity	Planned dur.	Correlation	Impact
266	A2640	Install Roof Decking	5.0d	-0.001 [†]	0.01
267	A3670	Painting	10.0d	+0.001 [†]	0.01
268	A4660	Setup Temporary Hoarding	1.0d	-0.006 [†]	0.01
269	A4430 CP	Stud Framing	3.0d	+0.002 [†]	0.01
270	A3430	Seal concrete Floor	2.0d	+0.002 [†]	0.00
271	A1240	Aluminum Framed Glazing System Shop Drawings	11.0d	+0.000 [†]	0.00
272	A3410	Painting	5.0d	+0.001 [†]	0.00
273	A4560	Review Interferences with Steel Joist	5.0d	-0.001 [†]	0.00
274	A4630	Drywall Installation	3.0d	-0.001 [†]	0.00
275	A3710	Tiling and rubber flooring Installation	10.0d	+0.000 [†]	0.00
276	A2910	Glazing Site Measure and Scanning	1.0d	-0.002 [†]	0.00
277	A4400 CP	Existing Columns Reinforcement	2.0d	+0.001 [†]	0.00
278	A2850	Exterior Cladding Site Measure and Scanning	1.0d	+0.002 [†]	0.00
279	A2980	L2 & L3 Air Vapor Barrier Installation	5.0d	-0.000 [†]	0.00
280	A3120	Exterior Cladding Site Measure and Scanning	1.0d	-0.002 [†]	0.00
281	A1750	Air Barrier System	10.0d	-0.000 [†]	0.00

Rank	Code	Activity	Planned dur.	Correlation	Impact
282	A3750	Washroom Partitions and Accessories Installation	5.0d	-0.000 [†]	0.00

Impact = |correlation| × planned duration. Critical-path activities flagged CP. † At 5,000 iterations, entries with |correlation| below $1.96/\sqrt{n} \approx 0.028$ are not statistically distinguishable from zero; 241 of 282 listed drivers carry the marker. Their rank order is noise, not signal.

A-07

Schedule Recovery — Baseline vs Mitigated

not run — no recovery scenario defined

A mitigated re-run was not in scope for this analysis; CPP runs this comparison when a recovery scenario is defined.

A-08

Methodology

basis, distribution, percentile method

Forecast completion dates are produced by Monte Carlo simulation over the activity duration distribution implied by the optimistic / most-likely / pessimistic percentages applied to each incomplete activity's planned duration. A full CPM forward pass is executed per iteration. Percentiles are derived from the completion-day vector using `numpy.percentile(method='nearest')` (harmonized across the engine in v2.8.x), which reports an actual simulation trial rather than an interpolated value, so each percentile traces back to a real, reproducible iteration. Sensitivity (tornado) is the Pearson correlation between each activity's sampled-duration vector and the final completion-day vector. Impact = |corr| × planned duration on the legacy PERT/Triangular path, or |corr| × posterior σ on the Bayesian-posterior path (when `historical_snapshots` was supplied). The active prior shape is reported per row in the sensitivity CSV's `prior_method` column. Statistical significance of the correlations: at $n = 5,000$ iterations, the two-sided 95% critical value for a Pearson correlation differing from zero is approximately $1.96/\sqrt{n} \approx 0.028$. Drivers whose |correlation| falls below that threshold are statistically indistinguishable from zero; they are shaded in the tornado (A-05) and marked † in the ranking (A-06) but remain fully listed.

Distribution: Triangular · Iterations: 5,000 · Random seed: 42 · Day basis: working days from data date. Working-day basis counts only the project's own working days, read from the calendar

loaded with this XER, so its workweek and its holiday exceptions are both honoured. The corresponding completion dates are the true calendar dates on which those working-day offsets fall.

Prepared by the schedule-risk-analysis skill in the CPP Scheduling Suite. This dashboard is self-contained. All assets are inlined and it renders offline.

A-09

Reproducibility Manifest

provenance

Generated	2026-09-01 05:02:11
Data Date	2025-07-01
Random Seed	42
Iterations (baseline)	5,000
Iterations (mitigated)	—
Percentile method	numpy nearest

Input files: **Ontario_Community_College_current.xer** SHA-256 7ed1cd8309b1752af74ec9c8d2fa11fbc9a58d4e065630a2589809ed3780ca10

Schedule Risk Analysis · Generated **2026-09-01 05:02:11** · Project **Ontario Community College - B2 (Demo Data)** · Run **Monte Carlo · 5,000 iterations** · Engine **cpm-engine v2.9.42**

Self-contained · Reproducible