

Appendix 3: Job Forecasts

This Section presents the projected number of jobs and potential gaps under three scenarios for the selected NOCs. These are the sections highlighted in the tables below:

1. National Occupation Classification (NOCs 2021)
2. Graduation Numbers
3. Replacement Demand
4. Female to Male Ratio (2021)
5. Job Forecasts
6. Employment Projections: Scenario 1
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1. National Occupation Classification (NOCs 2021)

Table 11: NOCs Used in the Report

Primary Professions Required for Retrofits	NOC
Owner	NOC
Asset Managers	10022
Project managers / owners rep (Construction GCs, CMs, PMs)	70010
Property Managers, Facility managers	70012
Consultants	NOC
Architects/Heritage Planners	21200



Envelope consultants, Façade Engineers	21300
Electrical & Electronics Engineer	21310
Electronic Service Technicians	21311
Mechanical Engineers	21321
Metallurgical & Materials Engineer	21322
Energy Auditors	22211
Lighting Designers	22214
Energy Modellers & simulation	22301
Quantity surveyors, cost consultants (estimators) & Specifiers	22303
Builders & Trades	NOC
Building Automation Technicians	22311
Exterior Insulated Finish Systems Mechanic	72014
Sheet Metal Installer (Residential (Low Rise))	72102
Boilermaker (Construction)	72103
Ironworker (Generalist, Structural and Ornamental)	72105
Welder	72106



Electricians	72200
Solar Installers	72201
Powerline Technician	72203
Plumbers	72300
Sprinkler and Fire Protection Installer	72301
Gas Fitter	72302
General Carpenters	72310
Brick and Stone Mason	72320
Heat and Frost Insulator	72321
HVAC and mechanical trades	72402
Crane operators	72500
Cement (Concrete) Finisher	73100
Tilesetters	73101
Steel stud and drywall installers	73102
Roofers	73110
Architectural Glass and Metal Technician	73111



Heat and Frost Insulators	73200
Material handlers	75101
Regulators	NOC
Building officials	22231
Municipal sustainability staff/planners	41405
Secondary Professions Required for Retrofits	NOC
Hazardous Materials Worker	21120
BIM technologists	22212
Interior Designers	52121
Construction Millwrights	72400
Heavy Equipment Operators	73400
Painters	73112
Flooring Finishers	73113
Drivers	73300
General Construction Labour	75110



3. Graduation Numbers

Table 12: Graduation Numbers Data NS (2017-2021)

NOCS	Occupational Description	Grad_2017	Grad_2018	Grad_2019	Grad_2020	Grad_2021
10022	Advertising, marketing and public relations managers	1,693	1,696	1,634	1697	1524
21120	Public and environmental health and safety professionals	397	405	1,634	745	859
21200	Architects	110	95	117	99	102
21300	Civil engineers	450	445	441	472	453
21310	Electrical and electronics engineers	558	636	564	619	531
21311	Computer engineers (except software engineers and designers)	643	716	757	887	1054
21321	Industrial and manufacturing engineers	532	529	516	563	531
21322	Metallurgical and materials engineers	392	393	354	392	359
22211	Industrial designers	135	101	138	143	97
22212	Drafting technologists and technicians	190	128	186	143	121
22214	Technical occupations in geomatics and meteorology	153	117	186	106	126
22231	Engineering inspectors and regulatory officers	400	391	339	383	371
22301	Mechanical engineering technologists and technicians	663	610	609	706	640
22303	Construction estimators	105	99	609	95	72
22311	Electronic service technicians (household and business equipment)	1,736	161	191	227	215
41405	Education policy researchers, consultants and program officers	326	305	339	348	447
52121	Interior designers and interior decorators	108	86	99	86	76
70010	Construction managers	973	1,000	908	1048	826



70012	Facility operation and maintenance managers	1027	1038	962	1045	953
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	15	156	18	44	31
72102	Sheet metal workers	172	156	153	152	145
72103	Boilermakers	172	156	153	152	143
72105	Ironworkers	178	174	156	188	166
72106	Welders and related machine operators	172	156	153	152	145
72200	Electricians (except industrial and power systems)	223	198	205	200	163
72201	Industrial electricians	223	198	205	200	163
72203	Electrical power line and cable workers	217	189	195	197	160
72300	Plumbers	181	147	132	129	105
72301	Steamfitters, pipefitters and sprinkler system installers	181	147	132	129	105
72302	Gas fitters	232	198	183	177	156
72310	Carpenters	117	109	102	108	103
72320	Bricklayers	3	15	6	6	6
72321	Insulators	6	18	3	35	21
72400	Construction millwrights and industrial mechanics	108	105	93	108	90
72402	Heating, refrigeration and air conditioning mechanics	117	129	135	239	99
72500	Crane operators	24	21	18	22	6
73100	Concrete finishers	9	33	9	41	27
73101	Tilesetters	9	33	9	41	27
73102	Plasterers, drywall installers and finishers and lathers	9	33	9	41	27

73110	Roofers and shinglers	6	18	3	35	21
73111	Glaziers	6	18	3	35	21
73112	Painters and decorators (except interior decorators)	6	18	3	35	21
73113	Floor covering installers	6	18	3	35	21
73200	Residential and commercial installers and servicers	78	105	95	230	72
73300	Transport truck drivers	24	21	18	22	6
73400	Heavy equipment operators	24	21	18	22	6
75101	Material handlers	0	0	0	3	0
75110	Construction trades helpers and labourers	24	21	18	22	6

4. Replacement Demand

Table 13: Replacement Demand Data (2021)

NOCs	Replacement Demand _ Total	Replacement Demand _ Employed	Replacement Demand -Unemployed
10022 Advertising, marketing and public relations managers	-5,015	-4,740	-275
70010 Construction managers	-14,620	-13,695	-925
70012 Facility operation and maintenance managers	-18,460	-17,720	-730
21200 Architects	-2,790	-2,740	-45
21300 Civil engineers	-8,070	-7,895	-180
21310 Electrical and electronics engineers	-7,160	-7,070	-85
21311 Computer engineers (except software engineers and designers)	-3,490	-3,465	-20
21321 Industrial and manufacturing engineers	-1,630	-1,565	-60

21322 Metallurgical and materials engineers	-385	-390	10
22211 Industrial designers	-470	-485	25
22214 Technical occupations in geomatics and meteorology	-780	-735	-45
22301 Mechanical engineering technologists and technicians	-3,265	-3,095	-165
22303 Construction estimators	-4,105	-3,940	-160
22311 Electronic service technicians (household and business equipment)	-5,435	-5,180	-260
72014 Contractors and supervisors, other construction trades, installers, repairers and servicers	-8,895	-8,320	-565
72102 Sheet metal workers	-1,400	-1,205	-190
72103 Boilermakers	-365	-300	-70
72105 Ironworkers	-125	-40	-80
72106 Welders and related machine operators	-5,370	-4,735	-635
72200 Electricians (except industrial and power system)	3,580	3,215	365
72201 Industrial electricians	-3,345	-3,095	-265
72203 Electrical power line and cable workers	105	75	20
72300 Plumbers	685	680	0
72301 Steamfitters, pipefitters and sprinkler system installers	-1,415	-1,010	-415
72302 Gas fitters	-630	-600	-25
72310 Carpenters	-11,130	8830	-2,300
72320 Bricklayers	-1,765	-1,460	-305
72321 Insulators	-470	-360	-110
72402 Heating, refrigeration and air conditioning mechanics	-835	-790	-45



72500 Crane operators	-1,950	-1,765	-200
73100 Concrete finishers	-585	-440	-140
73101 Tilesetters	-970	-805	-160
73102 Plasterers, drywall installers and finishers and lathers	-1,780	-1,420	-355
73110 Roofers and Shinglers	1,315	1,290	35
73111 Glaziers	-535	-455	-90
73200 Residential and commercial installers and servicers	1,430	1,140	290
75101 Material handlers	-1,010	-3,280	2,270
22231 Engineering inspectors and regulatory officers	-1,145	-1,130	-5
41405 Education policy researchers, consultants and program officers	-3,620	-3,600	-20
21120 Public and environmental health and safety professionals	-2,455	-2,435	-25
22212 Drafting technologists and technicians	-2,520	-2,320	-205
52121 Interior designers and interior decorators	-3,430	-3,195	-230
72400 Construction millwrights and industrial mechanics	-11,515	-10,825	-685
73400 Heavy equipment operators	-12,700	-10,410	-2,290
73112 Painters and decorators (except interior decorators)	-4,875	4,070	-805
73113 Floor covering installers	-970	855	-120
73300 Transport truck drivers	-75,550	68,525	-7,035
75110 Construction trades helpers and labourers	13,010	-12,010	985



5. Female to Male Ratio (2021)

Table 14: Female to Male Ratio and Visible minority Counts of **Construction & Trade Group**

NOCs	Description	Female to male Ratio	Visible minority
70010	Construction managers	0.17	4%
70012	Facility operation and maintenance managers	0.3	5%
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	0.06	4%
72102	Sheet metal workers	0	5%
72103	Boilermakers	0	0%
72105	Ironworkers	0.03	0%
72106	Welders and related machines operators	0.04	5%
72200	Electricians (except industrial and power system)	0.03	4%
72201	Industrial electricians	0.03	0%
72203	Electrical power line and cable workers	0	5%
72300	Plumbers	0.01	3%
72301	Steamfitters, pipefitters and sprinkler systems installers	0.02	0%
72302	Gas fitters	0	0%



72310	Carpenters	0.02	4%
72320	Bricklayers	0.03	0%
72321	Insulators	0.03	0%
72402	Heating, refrigeration and air conditioning mechanics	0.02	3%
72500	Crane operators	0	0%
73100	Concrete finishers	0	18%
73101	Tilesetters	0	15%
73102	Plasterers, drywall installers and finishers and lathers	0.04	5%
73110	Roofers and shinglers	0.03	5%
73111	Glaziers	0	0%
73112	Painters and decorators (except interior decorators)	0.13	10%
73113	Floor covering installers	0	6%
73200	Residential and commercial installers and servicers	0.05	3%
73300	Transport truck drivers	0.03	8%
73400	Heavy equipment operators	0.02	2%



75101	Material handlers	0.13	9%
75110	Construction trades helpers and labourers	0.06	6%

Table 15: Female to Male Ratio and Visible minority Counts of Engineering/Technical Group (2021)

NOCs	Description	Female to Male Ratio	Visible Minority
21200	Architects	0.5	9%
21300	Civil engineers	0.2	10%
21310	Electrical and electronics engineers	0.1	19%
21311	Computer engineers (except software engineers and designers)	0.1	22%
21321	Industrial and manufacturing engineers	0.4	14%
21322	Metallurgical and materials engineers	0	0%
22211	Industrial designers	1.3	20%
22212	Drafting technologists and technicians	0.5	5%
22214	Technical occupations in geomatics and meteorology	0.6	6%
22301	Mechanical engineering technologists and technicians	0.1	9%

22303	Construction estimators	0.1	4%
22311	Electronic service technicians (household and business equipment)	0.1	7%
22231	Engineering inspectors and regulatory officers	0.7	0%
			2%
72400	Construction millwrights and industrial mechanics	0	

Table 16: Female to Male Ratio and Visible minority Counts for Administrative/Policy/Marketing (2021)

Administrative/Policy/Marketing			
NOCs	Description	Female to Male Ratio	Visible Minority
10022	Advertising, marketing and public relations managers	1.7	9%
41405	Education policy researchers, consultants and program officers	2.6	10%
52121	Interior designers and interior decorators	5.3	0%



6. Job Forecasts

Table 17: job historical growth rates and forecasts by NOC groups

Construction & Trade														
NOCs	Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
70010	Construction managers	1,424	1,483	1,587	1,686	1,756	1,999	2,049	2,051	2,077	2,088	2,113	2,128	2,151
70012	Facility operation and maintenance managers	974	890	758	758	766	763	746	734	723	715	712	709	708
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1,409	1,442	1,431	1,477	1,569	1,562	1,567	1,577	1,587	1,600	1,607	1,616	1,625
72102	Sheet metal workers	725	715	633	616	577	586	580	579	578	578	580	581	582
72103	Boilermakers	157	160	148	157	166	161	161	163	163	164	165	167	168
72105	Ironworkers	393	418	379	396	475	536	550	566	579	591	600	609	617



72106	Welders and related machine operators	2,054	2,259	2,108	2,178	2,251	2,148	2,147	2,139	2,136	2,135	2,135	2,131	2,131
72200	Electricians (except industrial and power system)	2,560	2,576	2,483	2,597	2,684	2,801	2,821	2,856	2,901	2,946	2,986	3,025	3,068
72201	Industrial electricians	1,031	1,083	1,003	1,018	1,040	1,040	1,039	1,035	1,038	1,041	1,044	1,047	1,051
72203	Electrical power line and cable workers	549	579	528	538	500	428	411	401	392	382	379	375	373
72300	Plumbers	1,169	1,144	1,103	1,172	1,290	1,411	1,425	1,443	1,463	1,482	1,496	1,509	1,521
72301	Steamfitters, pipefitters and sprinkler system installers	968	954	894	920	951	961	976	999	1,017	1,035	1,043	1,051	1,063
72302	Gas fitters	147	144	141	146	155	176	181	186	191	195	197	199	201
72310	Carpenters	4,755	4,644	4,154	4,358	4,914	5,080	5,134	5,220	5,296	5,346	5,361	5,381	5,404
72320	Bricklayers	394	389	310	290	283	258	242	232	225	217	214	210	208



72321	Insulators	346	337	296	267	274	270	268	269	270	272	273	275	275
72402	Heating, refrigeration and air conditioning mechanics	658	710	713	925	1,153	1,191	1,213	1,235	1,257	1,285	1,309	1,331	1,352
72500	Crane operators	325	321	295	358	385	384	387	387	387	391	395	400	403
73100	Concrete finishers	219	219	209	204	205	216	215	217	220	222	222	223	225
73101	Tilesetters	178	162	151	153	153	156	156	157	157	158	158	158	158
73102	Plasterers, drywall installers and finishers and lathers	556	568	566	648	718	722	743	762	779	795	807	819	830
73110	Roofers and shinglers	565	573	519	558	625	709	731	764	792	817	829	844	858
73111	Glaziers	193	189	180	186	194	203	204	207	209	212	214	216	216
73112	Painters and decorators	1,584	1,509	1,325	1,262	1,234	1,249	1,218	1,216	1,227	1,234	1,239	1,238	1,241



73113	Floor covering installers	469	450	376	372	360	345	334	337	344	349	350	350	351
73200	Residential and commercial installers and servicers	1,177	1,349	1,346	1,364	1,390	1,381	1,361	1,374	1,393	1,405	1,407	1,412	1,419
73300	Transport truck drivers	7,462	7,369	6,657	7,047	7,313	7,342	7,506	7,669	7,798	7,914	8,025	8,129	8,249
73400	Heavy equipment operators	2,390	2,395	2,212	2,228	2,358	2,394	2,358	2,384	2,430	2,468	2,490	2,505	2,526
75101	Material handlers	4,378	4,544	4,592	4,834	4,876	4,923	4,942	4,971	5,000	5,021	5,052	5,076	5,107
75110	Construction trades helpers and labourers	4,188	4,245	3,962	4,019	4,123	4,309	4,269	4,268	4,285	4,309	4,326	4,348	4,374
Engineering/technology														
NOCs	Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
21200	Architects	127	371	353	367	369	367	365	361	356	353	352	351	351

21300	Civil engineers	1,188	1,167	1,090	1,181	1,250	1,280	1,272	1,270	1,273	1,278	1,286	1,293	1,300
21310	Electrical and electronics engineers	723	686	604	589	611	704	706	704	706	707	710	711	712
21311	Computer engineers (except software engineers and designers)	364	371	412	430	396	375	375	376	377	377	381	383	387
21321	Industrial and manufacturing engineers	163	172	202	203	218	334	344	356	367	374	380	387	392
21322	Metallurgical and materials engineers	46	64	65	65	66	62	65	69	72	75	77	80	82
22211	Industrial designers	143	149	142	138	149	148	149	149	149	150	150	151	151
22212	Drafting technologists and technicians	814	781	629	621	692	706	702	697	694	693	692	691	690
22214	Technical occupations in geomatics and meteorology	203	206	186	213	256	263	271	277	282	287	289	292	294

22301	Mechanical engineering technologists and technicians	300	320	286	297	308	342	345	350	354	357	364	369	372
22303	Construction estimators	430	436	396	386	416	420	417	417	418	421	423	425	427
22311	Electronic service technicians	1,632	1,605	1,489	1,487	1,523	1,490	1,520	1,544	1,565	1,586	1,600	1,617	1,630
22231	Engineering inspectors and regulatory officers	211	195	176	184	199	213	214	216	218	221	223	225	227
72400	Construction millwrights and industrial mechanics	1,753	1,826	1,710	1,895	2,130	2,338	2,414	2,482	2,540	2,589	2,631	2,667	2,700
Administrative														
NOCs	Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
10022	Advertising, marketing and public relations managers	637	607	530	554	645	788	807	827	846	864	881	898	914

41405	Education policy researchers, consultants and program officers	837	928	968	1,179	1,312	1,374	1,428	1,478	1,508	1,539	1,572	1,596	1,621
52121	Interior designers and interior decorators	295	283	263	295	332	349	356	361	367	373	376	380	383



7. Employment Projections: Scenario 1

Table 18: Scenario 1: Employment projections (2025-2031) as per 2020 standards for each NOC.

Construction and Trade		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2256.1	2284.7	2296.8	2324.3	2340.8	2366.1	2387
70012	Facility operation and maintenance managers	807.4	795.3	786.5	783.2	779.9	778.8	778.8
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1734.7	1745.7	1760	1767.7	1777.6	1787.5	1796.3
72102	Sheet metal workers	636.9	635.8	635.8	638	639.1	640.2	642.4
72103	Boilermakers	179.3	179.3	180.4	181.5	183.7	184.8	185.9
72105	Ironworkers	622.6	636.9	650.1	660	669.9	678.7	686.4

72106	Welders and related machine operators	2352.9	2349.6	2348.5	2348.5	2344.1	2344.1	2339.7
72200	Electricians (except industrial and power system)	3141.6	3191.1	3240.6	3284.6	3327.5	3374.8	3416.6
72201	Industrial electricians	1138.5	1141.8	1145.1	1148.4	1151.7	1156.1	1159.4
72203	Electrical power line and cable workers	441.1	431.2	420.2	416.9	412.5	410.3	407
72300	Plumbers	1587.3	1609.3	1630.2	1645.6	1659.9	1673.1	1684.1
72301	Steamfitters, pipefitters and sprinkler system installers	1098.9	1118.7	1138.5	1147.3	1156.1	1169.3	1181.4
72302	Gas fitters	204.6	210.1	214.5	216.7	218.9	221.1	224.4
72310	Carpenters	5742	5825.6	5880.6	5897.1	5919.1	5944.4	5965.3
72320	Bricklayers	255.2	247.5	238.7	235.4	231	228.8	227.7
72321	Insulators	295.9	297	299.2	300.3	302.5	302.5	304.7



72402	Heating, refrigeration and air conditioning mechanics	1358.5	1382.7	1413.5	1439.9	1464.1	1487.2	1509.2
72500	Crane operators	425.7	425.7	430.1	434.5	440	443.3	445.5
73100	Concrete finishers	238.7	242	244.2	244.2	245.3	247.5	249.7
73101	Tilesetters	172.7	172.7	173.8	173.8	173.8	173.8	174.9
73102	Plasterers, drywall installers and finishers and lathers	838.2	856.9	874.5	887.7	900.9	913	924
73110	Roofers and shinglers	840.4	871.2	898.7	911.9	928.4	943.8	958.1
73111	Glaziers	227.7	229.9	233.2	235.4	237.6	237.6	240.9
73112	Painters and decorators (except interior decorators)	1337.6	1349.7	1357.4	1362.9	1361.8	1365.1	1371.7
73113	Floor covering installers	370.7	378.4	383.9	385	385	386.1	388.3

73200	Residential and commercial installers and servicers	1511.4	1532.3	1545.5	1547.7	1553.2	1560.9	1568.6
73300	Transport truck drivers	8435.9	8577.8	8705.4	8827.5	8941.9	9073.9	9205.9
73400	Heavy equipment operators	2622.4	2673	2714.8	2739	2755.5	2778.6	2803.9
75101	Material handlers	5468.1	5500	5523.1	5557.2	5583.6	5617.7	5649.6
75110	Construction trades helpers and labourers	4694.8	4713.5	4739.9	4758.6	4782.8	4811.4	4846.6
Engineering/Technology		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
21200	Architects	415.15	409.4	405.95	404.8	403.65	403.65	402.5
21300	Civil engineers	1460.5	1463.95	1469.7	1478.9	1486.95	1495	1504.2
21310	Electrical and electronics engineers	809.6	811.9	813.05	816.5	817.65	818.8	818.8

21311	Computer engineers (except software engineers and designers)	432.4	433.55	433.55	438.15	440.45	445.05	448.5
21321	Industrial and manufacturing engineers	409.4	422.05	430.1	437	445.05	450.8	455.4
21322	Metallurgical and materials engineers	79.35	82.8	86.25	88.55	92	94.3	95.45
22211	Industrial designers	171.35	171.35	172.5	172.5	173.65	173.65	173.65
22212	Drafting technologists and technicians	801.55	798.1	796.95	795.8	794.65	793.5	793.5
22214	Technical occupations in geomatics and meteorology	318.55	324.3	330.05	332.35	335.8	338.1	340.4
22301	Mechanical engineering technologists and technicians	402.5	407.1	410.55	418.6	424.35	427.8	433.55
22303	Construction estimators	479.55	480.7	484.15	486.45	488.75	491.05	494.5
22311	Electronic service technicians (household and business equipment)	1775.6	1799.75	1823.9	1840	1859.55	1874.5	1891.75



22231	Engineering inspectors and regulatory officers	248.4	250.7	254.15	256.45	258.75	261.05	263.35
72400	Construction millwrights and industrial mechanics	2854.3	2921	2977.35	3025.65	3067.05	3105	3138.35
Administrative		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	868.35	888.3	907.2	925.05	942.9	959.7	977.55
41405	Education policy researchers, consultants and program officers	1551.9	1583.4	1615.95	1650.6	1675.8	1702.05	1727.25
52121	Interior designers and interior decorators	379.05	385.35	391.65	394.8	399	402.15	405.3

8. Employment Projections: Scenario 2

Table 19: Scenario 2: Employment projections (2025-2031) as per 2020 standards for each NOC

Construction/Trade		Scenario 2						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2358.65	2388.55	2401.2	2429.95	2447.2	2473.65	2495.5
70012	Facility operation and maintenance managers	844.1	831.45	822.25	818.8	815.35	814.2	814.2
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1813.55	1825.05	1840	1848.05	1858.4	1868.75	1877.95
72102	Sheet metal workers	665.85	664.7	664.7	667	668.15	669.3	671.6
72103	Boilermakers	187.45	187.45	188.6	189.75	192.05	193.2	194.35

72105	Ironworkers	650.9	665.85	679.65	690	700.35	709.55	717.6
72106	Welders and related machine operators	2459.85	2456.4	2455.25	2455.25	2450.65	2450.65	2446.05
72200	Electricians (except industrial and power system)	3284.4	3336.15	3387.9	3433.9	3478.75	3528.2	3571.9
72201	Industrial electricians	1190.25	1193.7	1197.15	1200.6	1204.05	1208.65	1212.1
72203	Electrical power line and cable workers	461.15	450.8	439.3	435.85	431.25	428.95	425.5
72300	Plumbers	1659.45	1682.45	1704.3	1720.4	1735.35	1749.15	1760.65
72301	Steamfitters, pipefitters and sprinkler system installers	1148.85	1169.55	1190.25	1199.45	1208.65	1222.45	1235.1
72302	Gas fitters	213.9	219.65	224.25	226.55	228.85	231.15	234.6
72310	Carpenters	6003	6090.4	6147.9	6165.15	6188.15	6214.6	6236.45

72320	Bricklayers	266.8	258.75	249.55	246.1	241.5	239.2	238.05
72321	Insulators	309.35	310.5	312.8	313.95	316.25	316.25	318.55
72402	Heating, refrigeration and air conditioning mechanics	1420.25	1445.55	1477.75	1505.35	1530.65	1554.8	1577.8
72500	Crane operators	445.05	445.05	449.65	454.25	460	463.45	465.75
73100	Concrete finishers	249.55	253	255.3	255.3	256.45	258.75	261.05
73101	Tilesetters	180.55	180.55	181.7	181.7	181.7	181.7	182.85
73102	Plasterers, drywall installers and finishers and lathers	876.3	895.85	914.25	928.05	941.85	954.5	966
73110	Roofers and shinglers	878.6	910.8	939.55	953.35	970.6	986.7	1001.65
73111	Glaziers	238.05	240.35	243.8	246.1	248.4	248.4	251.85

73112	Painters and decorators (except interior decorators)	1398.4	1411.05	1419.1	1424.85	1423.7	1427.15	1434.05
73113	Floor covering installers	387.55	395.6	401.35	402.5	402.5	403.65	405.95
73200	Residential and commercial installers and servicers	1580.1	1601.95	1615.75	1618.05	1623.8	1631.85	1639.9
73300	Transport truck drivers	8819.35	8967.7	9101.1	9228.75	9348.35	9486.35	9624.35
73400	Heavy equipment operators	2741.6	2794.5	2838.2	2863.5	2880.75	2904.9	2931.35
75101	Material handlers	5716.65	5750	5774.15	5809.8	5837.4	5873.05	5906.4
75110	Construction trades helpers and labourers	4908.2	4927.75	4955.35	4974.9	5000.2	5030.1	5066.9
Engineering/ Technology		Scenario 2						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031

21200	Architects	397.1	391.6	388.3	387.2	386.1	386.1	385
21300	Civil engineers	1397	1400.3	1405.8	1414.6	1422.3	1430	1438.8
21310	Electrical and electronics engineers	774.4	776.6	777.7	781	782.1	783.2	783.2
21311	Computer engineers (except software engineers and designers)	413.6	414.7	414.7	419.1	421.3	425.7	429
21321	Industrial and manufacturing engineers	391.6	403.7	411.4	418	425.7	431.2	435.6
21322	Metallurgical and materials engineers	75.9	79.2	82.5	84.7	88	90.2	91.3
22211	Industrial designers	163.9	163.9	165	165	166.1	166.1	166.1
22212	Drafting technologists and technicians	766.7	763.4	762.3	761.2	760.1	759	759
22214	Technical occupations in geomatics and meteorology	304.7	310.2	315.7	317.9	321.2	323.4	325.6
22301	Mechanical engineering technologists and technicians	385	389.4	392.7	400.4	405.9	409.2	414.7

22303	Construction estimators	458.7	459.8	463.1	465.3	467.5	469.7	473
22311	Electronic service technicians (household and business equipment)	1698.4	1721.5	1744.6	1760	1778.7	1793	1809.5
22231	Engineering inspectors and regulatory officers	237.6	239.8	243.1	245.3	247.5	249.7	251.9
72400	Construction millwrights and industrial mechanics	2730.2	2794	2847.9	2894.1	2933.7	2970	3001.9
Administrative		Scenario 2						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	868.35	888.3	907.2	925.05	942.9	959.7	977.55
41405	Education policy researchers, consultants and program officers	1551.9	1583.4	1615.95	1650.6	1675.8	1702.05	1727.25
52121	Interior designers and interior decorators	379.05	385.35	391.65	394.8	399	402.15	405.3

9. Employment Projections: Scenario 3

Table 20: Scenario 3: Employment projections (2025-2031) as per 2020 standards for each NOC

Construction & Trade		Scenario 3						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2563.75	2596.25	2610	2641.25	2660	2688.75	2712.5
70012	Facility operation and maintenance managers	917.5	903.75	893.75	890	886.25	885	885
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1971.25	1983.75	2000	2008.75	2020	2031.25	2041.25
72102	Sheet metal workers	723.75	722.5	722.5	725	726.25	727.5	730
72103	Boilermakers	203.75	203.75	205	206.25	208.75	210	211.25
72105	Ironworkers	707.5	723.75	738.75	750	761.25	771.25	780



72106	Welders and related machine operators	2673.75	2670	2668.75	2668.75	2663.75	2663.75	2658.75
72200	Electricians (except industrial and power system)	3570	3626.25	3682.5	3732.5	3781.25	3835	3882.5
72201	Industrial electricians	1293.75	1297.5	1301.25	1305	1308.75	1313.75	1317.5
72203	Electrical power line and cable workers	501.25	490	477.5	473.75	468.75	466.25	462.5
72300	Plumbers	1803.75	1828.75	1852.5	1870	1886.25	1901.25	1913.75
72301	Steamfitters, pipefitters and sprinkler system installers	1248.75	1271.25	1293.75	1303.75	1313.75	1328.75	1342.5
72302	Gas fitters	232.5	238.75	243.75	246.25	248.75	251.25	255
72310	Carpenters	6525	6620	6682.5	6701.25	6726.25	6755	6778.75
72320	Bricklayers	290	281.25	271.25	267.5	262.5	260	258.75

72321	Insulators	336.25	337.5	340	341.25	343.75	343.75	346.25
72402	Heating, refrigeration and air conditioning mechanics	1543.75	1571.25	1606.25	1636.25	1663.75	1690	1715
72500	Crane operators	483.75	483.75	488.75	493.75	500	503.75	506.25
73100	Concrete finishers	271.25	275	277.5	277.5	278.75	281.25	283.75
73101	Tilesetters	196.25	196.25	197.5	197.5	197.5	197.5	198.75
73102	Plasterers, drywall installers and finishers and lathers	952.5	973.75	993.75	1008.75	1023.75	1037.5	1050
73110	Roofers and shinglers	955	990	1021.25	1036.25	1055	1072.5	1088.75
73111	Glaziers	258.75	261.25	265	267.5	270	270	273.75
73112	Painters and decorators (except interior decorators)	1520	1533.75	1542.5	1548.75	1547.5	1551.25	1558.75

73113	Floor covering installers	421.25	430	436.25	437.5	437.5	438.75	441.25
73200	Residential and commercial installers and servicers	1717.5	1741.25	1756.25	1758.75	1765	1773.75	1782.5
73300	Transport truck drivers	9586.25	9747.5	9892.5	10031.25	10161.25	10311.25	10461.25
73400	Heavy equipment operators	2980	3037.5	3085	3112.5	3131.25	3157.5	3186.25
75101	Material handlers	6213.75	6250	6276.25	6315	6345	6383.75	6420
75110	Construction trades helpers and labourers	5335	5356.25	5386.25	5407.5	5435	5467.5	5507.5
Engineering/ Technology		Scenario 3						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
21200	Architects	451.25	445	441.25	440	438.75	438.75	437.5
21300	Civil engineers	1587.5	1591.25	1597.5	1607.5	1616.25	1625	1635

21310	Electrical and electronics engineers	880	882.5	883.75	887.5	888.75	890	890
21311	Computer engineers (except software engineers and designers)	470	471.25	471.25	476.25	478.75	483.75	487.5
21321	Industrial and manufacturing engineers	445	458.75	467.5	475	483.75	490	495
21322	Metallurgical and materials engineers	86.25	90	93.75	96.25	100	102.5	103.75
22211	Industrial designers	186.25	186.25	187.5	187.5	188.75	188.75	188.75
22212	Drafting technologists and technicians	871.25	867.5	866.25	865	863.75	862.5	862.5
22214	Technical occupations in geomatics and meteorology	346.25	352.5	358.75	361.25	365	367.5	370
22301	Mechanical engineering technologists and technicians	437.5	442.5	446.25	455	461.25	465	471.25
22303	Construction estimators	521.25	522.5	526.25	528.75	531.25	533.75	537.5

22311	Electronic service technicians (household and business equipment)	1930	1956.25	1982.5	2000	2021.25	2037.5	2056.25
22231	Engineering inspectors and regulatory officers	270	272.5	276.25	278.75	281.25	283.75	286.25
72400	Construction millwrights and industrial mechanics	3102.5	3175	3236.25	3288.75	3333.75	3375	3411.25
Administrative		Scenario 3						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	909.7	930.6	950.4	969.1	987.8	1005.4	1024.1
41405	Education policy researchers, consultants and program officers	1625.8	1658.8	1692.9	1729.2	1755.6	1783.1	1809.5
52121	Interior designers and interior decorators	397.1	403.7	410.3	413.6	418	421.3	424.6

10. Methodology: Lightcast Forecasts Workforce Trends

Lightcast combines data from various sources to create a comprehensive picture of the labour market, covering industries, occupations, and education trends across Canada. By integrating datasets like SEPH (Survey of Employment, Payroll, and Hours), Census, LFS (Labour Force Survey), and PSIS (Postsecondary Student Information System), Lightcast compensates for the limitations of individual sources. The result is a detailed and user-friendly dataset covering over 300 industries, 500 occupations, and 5,000 geographic areas.

Key Steps:

1. **Data Integration:** Lightcast harmonizes employment, earnings, and demographic data from multiple sources to ensure accuracy and consistency. For example, SEPH data is supplemented with Census and CBP data to fill gaps in employment coverage.
2. **Projections:** Workforce projections are based on historical data (from 2001) and trends extending to 2031. Lightcast uses linear regression models combined with adjustments from COPS (Canadian Occupational Projection System) to ensure realistic forecasts.
3. **Occupation and Industry Insights:** Staffing patterns are derived from industry data, which is considered more reliable than self-reported occupation data. This ensures accurate representation of how industries employ different occupations.
4. **Geographic and Demographic Context:** The data accounts for regional differences and demographic factors like aging, fertility, and migration, providing a localized view of workforce dynamics.
5. **Self-Employment and Education Data:** Lightcast estimates self-employed workers and tracks education completions, helping to understand workforce supply from new graduates and other entrants.

This methodology supports the identification of labour shortages, aging workforce trends, and potential replacements, offering actionable insights for workforce planning.

11. Scenario Gaps

Table 21: Gaps For Scenario 1, 2, and 3 for Construction and Trade Group

Construction & Trade		Scenario 1 (Gaps)						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030
70010	Construction managers	-205	-208	-209	-211	-213	-215	-308	-312	-313	-317	-319	-323	-513	-519	-522	-528	-532	-538
70012	Facility operation and maintenance managers	-73.4	-72.3	-71.5	-71.2	-70.9	-70.8	-110.1	-108.45	-107.25	-106.8	-106.35	-106.2	-183.5	-180.75	-178.75	-178	-177.25	-177
72014	Contractors and supervisors,	-158	-159	-160	-161	-162	-163	-237	-238	-240	-241	-242	-244	-394	-397	-400	-402	-404	-406
72102	Sheet metal workers	-57.9	-57.8	-57.8	-58	-58.1	-58.2	-86.85	-86.7	-86.7	-87	-87.15	-87.3	-144.75	-144.5	-144.5	-145	-145.25	-145.5
72103	Boilermakers	-16.3	-16.3	-16.4	-16.5	-16.7	-16.8	-24.45	-24.45	-24.6	-24.75	-25.05	-25.2	-40.75	-40.75	-41	-41.25	-41.75	-42
72105	Ironworkers	-56.6	-57.9	-59.1	-60	-60.9	-61.7	-84.9	-86.85	-88.65	-90	-91.35	-92.55	-141.5	-144.75	-147.75	-150	-152.25	-154.25



72106	Welders and related machine operators	-214	-214	-214	-214	-213	-213	-321	-320	-320	-320	-320	-320	-535	-534	-534	-534	-533	-533
72200	Electricians	-286	-290	-295	-299	-303	-307	-428	-435	-442	-448	-454	-460	-714	-725	-737	-747	-756	-767
72201	Industrial electricians	-104	-104	-104	-104	-105	-105	-155	-156	-156	-157	-157	-158	-259	-260	-260	-261	-262	-263
72203	Electrical power line and cable workers	-40.1	-39.2	-38.2	-37.9	-37.5	-37.3	-60.15	-58.8	-57.3	-56.85	-56.25	-55.95	-100.25	-98	-95.5	-94.75	-93.75	-93.25
72300	Plumbers	-144	-146	-148	-150	-151	-152	-216	-219	-222	-224	-226	-228	-361	-366	-371	-374	-377	-380
72301	Steamfitters, pipefitters and sprinkler system installers	-99.9	-102	-104	-104	-105	-106	-149.85	-153	-155	-156	-158	-159	-249.75	-254	-259	-261	-263	-266
72302	Gas fitters	-18.6	-19.1	-19.5	-19.7	-19.9	-20.1	-27.9	-28.65	-29.25	-29.55	-29.85	-30.15	-46.5	-47.75	-48.75	-49.25	-49.75	-50.25
72310	Carpenters	-522	-530	-535	-536	-538	-540	-783	-794	-802	-804	-807	-811	-1,305	-1,324	-1,337	-1,340	-1,345	-1,351
72320	Bricklayers	-23.2	-22.5	-21.7	-21.4	-21	-20.8	-34.8	-33.75	-32.55	-32.1	-31.5	-31.2	-58	-56.25	-54.25	-53.5	-52.5	-52



72321	Insulators	-26.9	-27	-27.2	-27.3	-27.5	-27.5	-40.35	-40.5	-40.8	-40.95	-41.25	-41.25	-67.25	-67.5	-68	-68.25	-68.75	-68.75
72402	Heating, refrigeration and air conditioning mechanics	-124	-126	-129	-131	-133	-135	-185	-189	-193	-196	-200	-203	-309	-314	-321	-327	-333	-338
72500	Crane operators	-38.7	-38.7	-39.1	-39.5	-40	-40.3	-58.05	-58.05	-58.65	-59.25	-60	-60.45	-96.75	-96.75	-97.75	-98.75	-100	-100.75
73100	Concrete finishers	-21.7	-22	-22.2	-22.2	-22.3	-22.5	-32.55	-33	-33.3	-33.3	-33.45	-33.75	-54.25	-55	-55.5	-55.5	-55.75	-56.25
73101	Tilesetters	-15.7	-15.7	-15.8	-15.8	-15.8	-15.8	-23.55	-23.55	-23.7	-23.7	-23.7	-23.7	-39.25	-39.25	-39.5	-39.5	-39.5	-39.5
73102	Plasterers, drywall installers and finishers and lathers	-76.2	-77.9	-79.5	-80.7	-81.9	-83	-114.3	-116.85	-119.25	-121.05	-122.85	-124.5	-190.5	-194.75	-198.75	-201.75	-204.75	-207.5
73110	Roofers and shinglers	-76.4	-79.2	-81.7	-82.9	-84.4	-85.8	-114.6	-118.8	-122.55	-124.35	-126.6	-128.7	-191	-198	-204.25	-207.25	-211	-214.5
73111	Glaziers	-20.7	-20.9	-21.2	-21.4	-21.6	-21.6	-31.05	-31.35	-31.8	-32.1	-32.4	-32.4	-51.75	-52.25	-53	-53.5	-54	-54

73112	Painters and decorators (except interior decorators)	-122	-123	-123	-124	-124	-124	-182	-184	-185	-186	-186	-186	-304	-307	-309	-310	-310	-310
73113	Floor covering installers	-33.7	-34.4	-34.9	-35	-35	-35.1	-50.55	-51.6	-52.35	-52.5	-52.5	-52.65	-84.25	-86	-87.25	-87.5	-87.5	-87.75
73200	Residential and commercial installers and servicers	-137	-139	-141	-141	-141	-142	-206	-209	-211	-211	-212	-213	-344	-348	-351	-352	-353	-355
73300	Transport truck drivers	-767	-780	-791	-803	-813	-825	-1,150	-1,170	-1,187	-1,204	-1,219	-1,237	-1,917	-1,950	-1,979	-2,006	-2,032	-2,062
73400	Heavy equipment operators	-238	-243	-247	-249	-251	-253	-358	-365	-370	-374	-376	-379	-596	-608	-617	-623	-626	-632
75101	Material handlers	-497	-500	-502	-505	-508	-511	-746	-750	-753	-758	-761	-766	-1,243	-1,250	-1,255	-1,263	-1,269	-1,277
75110	Construction trades helpers and labourers	-427	-429	-431	-433	-435	-437	-640	-643	-646	-649	-652	-656	-1,067	-1,071	-1,077	-1,082	-1,087	-1,094



Table 22: Gaps For Scenario 1, 2, and 3 for Engineering/Technology Group

Engineering		Scenario 1(Gaps						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030
21200	Architects	-36.1	-35.6	-35.3	-35.2	-35.1	-35.1	-36.1	-35.6	-35.3	-35.2	-35.1	-35.1	-90.25	-89	-88.25	-88	-87.75	-87.75
21300	Civil engineers	-127	-127	-128	-129	-129	-130	-127	-127	-128	-129	-129	-130	-318	-318	-320	-322	-323	-325
21310	Electrical and electronics engineers	-70.4	-70.6	-70.7	-71	-71.1	-71.2	-70.4	-70.6	-70.7	-71	-71.1	-71.2	-176	-176.5	-176.75	-177.5	-177.75	-178
21311	Computer engineers (except software engineers and designers)	-37.6	-37.7	-37.7	-38.1	-38.3	-38.7	-37.6	-37.7	-37.7	-38.1	-38.3	-38.7	-94	-94.25	-94.25	-95.25	-95.75	-96.75
21321	Industrial and manufacturing engineers	-35.6	-36.7	-37.4	-38	-38.7	-39.2	-35.6	-36.7	-37.4	-38	-38.7	-39.2	-89	-91.75	-93.5	-95	-96.75	-98

21322	Metallurgical and materials engineers	-6.9	-7.2	-7.5	-7.7	-8	-8.2	-6.9	-7.2	-7.5	-7.7	-8	-8.2	-17.25	-18	-18.75	-19.25	-20	-20.5
22211	Industrial designers	-14.9	-14.9	-15	-15	-15.1	-15.1	-14.9	-14.9	-15	-15	-15.1	-15.1	-37.25	-37.25	-37.5	-37.5	-37.75	-37.75
22212	Drafting technologists and technicians	-69.7	-69.4	-69.3	-69.2	-69.1	-69	-69.7	-69.4	-69.3	-69.2	-69.1	-69	-174.25	-173.5	-173.25	-173	-172.75	-172.5
22214	Technical occupations in geomatics and meteorology	-27.7	-28.2	-28.7	-28.9	-29.2	-29.4	-27.7	-28.2	-28.7	-28.9	-29.2	-29.4	-69.25	-70.5	-71.75	-72.25	-73	-73.5
22301	Mechanical engineering technologists and technicians	-35	-35.4	-35.7	-36.4	-36.9	-37.2	-35	-35.4	-35.7	-36.4	-36.9	-37.2	-87.5	-88.5	-89.25	-91	-92.25	-93
22303	Construction estimators	-41.7	-41.8	-42.1	-42.3	-42.5	-42.7	-41.7	-41.8	-42.1	-42.3	-42.5	-42.7	-104.25	-104.5	-105.25	-105.75	-106.25	-106.75
22311	Electronic service technicians	-154	-157	-159	-160	-162	-163	-154	-157	-159	-160	-162	-163	-386	-391	-397	-400	-404	-408

22231	Engineering inspectors and regulatory officers	-21.6	-21.8	-22.1	-22.3	-22.5	-22.7	-21.6	-21.8	-22.1	-22.3	-22.5	-22.7	-54	-54.5	-55.25	-55.75	-56.25	-56.75
72400	Construction millwrights and industrial mechanics	-248	-254	-259	-263	-267	-270	-248	-254	-259	-263	-267	-270	-621	-635	-647	-658	-667	-675

Table 23: Gaps For Scenario 1, 2, and 3 for Administrative Group

Administrative		Scenario 1(Gaps)						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030

10022	Advertising, marketing and public relations managers	-41.35	-42.3	-43.2	-44.05	-44.9	-45.7	-41.35	-42.3	-43.2	-44.05	-44.9	-45.7	-82.7	-84.6	-86.4	-88.1	-89.8	-91.4
41405	Education policy researchers, consultants and program officers	-74	-75	-77	-79	-80	-81	-74	-75	-77	-79	-80	-81	-148	-151	-154	-157	-160	-162
52121	Interior designers and interior decorators	-18.05	-18.35	-18.65	-18.8	-19	-19.15	-18.05	-18.35	-18.65	-18.8	-19	-19.15	-36.1	-36.7	-37.3	-37.6	-38	-38.3