

Report on the Study of Computer Programming in the Electronics Manufacturing Industry

Excerpt from the WCIRB Classification and Rating Committee Minutes
February 1, 2022

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Computer Programming in the Electronics Manufacturing Industry

8859(1), *Computer Programming or Software Development – all employees – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*

8859(2), *Internet or Web-Based Application Development or Operation – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*

Manufacturing Classifications in the Electronics Industry Group

3681(1), *Instrument Mfg. – electronic – professional or scientific – N.O.C.*

3681(2), *Computer or Computer Peripheral Equipment Mfg. – N.O.C.*

3681(3), *Telecommunications Equipment Mfg.*

3681(4), *Audio/Video Electronic Products Mfg.*

4112, *Integrated Circuit and Semiconductor Wafer Mfg.*

Executive Summary

Background and Objectives

The electronics manufacturing industry has evolved, increasing integration between computer programming and electronics manufacturing operations. In the Electronics Industry Group, Classifications 3681¹ and 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, are the two largest classifications and employers assigned to these classifications typically retain computer programmers and/or design engineers to support their manufacturing operations.

Computer programming employers are typically assigned to Classifications 8859(1), *Computer Programming or Software Development*, or 8859(2), *Internet or Web-Based Application Development or Operation*. Computer programming operations that support an employer's own electronics manufacturing operations, however, should not be assigned to Classification 8859 and are typically assignable to Classification 8810, *Clerical Office Employees*, based on the Standard Exceptions rule. Given the prevalence of hardware and software development activities that are often integral to the operations of electronics manufacturers assigned to Classifications 3681 and 4112, the computer programming and other clerical activities of these firms may be more like those typically found in businesses assigned to 8859 than to 8810. Therefore, the current classification procedure may result in disparate treatment for similar operations. A substantial share of the statewide Classification 8810 payroll (more than 20% between policy years 2014 and 2018) was reported for employers in the Electronics Industry Group, while about 8% of all reported payroll in Classification 8859 was from the Electronics Industry Group, some of which may not be consistent with the intended scope of Classification 8859.

Given these concerns and the evolution of the electronics manufacturing industry, the WCIRB reviewed computer programming operations in connection with the Electronics Industry Group as part of a multi-year effort. Subsequent phases of this study will include an in-depth operational review of the other 10 classifications in the Electronics Industry Group in 2022 to assess which classifications belong in this group and a data analysis of the computer programming operations in non-electronics industries.

Findings

The key findings of this study include:

1. Employers assigned to classifications in the Electronics Industry Group often conduct computer programming or design engineering operations assignable to Classification 8810. These computer programmers or design engineers often have similar job duties and average wages as those assigned to Classification 8859. It is more common for employers with payroll reported in

¹ Classification 3681 consists of four alternate phraseologies (or suffixes): 3681(1), *Instrument Mfg. – electronic – professional or scientific – N.O.C.*; 3681(2), *Computer or Computer Peripheral Equipment Mfg. – N.O.C.*; 3681(3), *Telecommunications Equipment Mfg.*; and 3681(4), *Audio/Video Electronic Products Mfg.*

Classifications 3681 and 4112 to have computer programming or design engineering operations than those with payroll reported in the other 10 classifications in the Electronics Industry Group.

2. The computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers have significantly lower loss to payroll ratios than the statewide experience reported in Classifications 8810 and 8742, *Salesperson – Outside*.
3. The loss to payroll ratio differentials between the 8859, 8810 and 8742 experience of Classifications 3681 and 4112 employers are much smaller than those of the statewide 8859, 8810 and 8742 experience, which suggests the computer programming, clerical and outside sales operations of the two Electronics Industry Group classifications share relatively similar exposure to losses.
4. The 8810 experience of Classifications 3681 and 4112 employers share similar typical causes of injury. The claim frequencies for the typical causes of injury for these 8810 employees have been consistently lower than those for statewide Classification 8810 and consistently higher than those for statewide Classification 8859. This suggests that the 8810 experience of Classifications 3681 and 4112 employers reflects a mix of computer programming and clerical operations.
5. Outside sales operations of Classifications 3681 and 4112 employers have a larger share of claims involving motor vehicle accidents than these employers' computer programming and clerical operations. While motor vehicle loss exposure is somewhat higher for the outside sales operations, Classifications 3681 and 4112 employers generally have a consistent share of Classification 8742 payroll and, as a result, a relatively consistent motor vehicle loss exposure.
6. Given the homogeneity of the loss to payroll experience for computer programming and clerical operations of, and relatively consistent risk exposure to Classification 8742 losses among, Classifications 3681 and 4112 employers, the computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers could be combined.
7. Combining the computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers into a single companion classification would lead to an average decrease of 57.8% in the selected loss to payroll ratio for these operations.
8. Approximately 20% of the payroll assigned to Classifications 8810, 8742 and 8859 for employers assigned to Classifications 3681 and 4112 is estimated to be in excess of the maximum payroll limitation threshold in the *California Workers' Compensation Uniform Statistical Reporting Plan—1995* (USRP).² In addition, there is no indication that the higher wages are correlated with higher loss costs.
9. The advisory pure premium rates for the other 10 classifications in the Electronics Industry Group vary significantly. These 10 Industry Group classifications have more diverse manufacturing operations, and it is less common for these employers to retain computer programmers to support their manufacturing operations.

² The maximum payroll limitation threshold in California effective September 1, 2021 is \$144,300.

Recommendations

Based on these findings, the WCIRB recommends:

1. Establishing companion Classification 8874 in the Electronics Industry Group, with the following five alternate phraseologies (or suffixes), to apply to the hardware and software design and development, clerical and outside sales operations performed in connection with manufacturing operations assigned Classifications 3681 and 4112:
 - a. Classification 8874(1), *Instrument Mfg. – electronic – professional or scientific – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons – N.O.C.*
 - b. Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons – N.O.C.*
 - c. Classification 8874(3), *Telecommunications Equipment Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*
 - d. Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*
 - e. Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*
2. Amending the following classifications to reference the corresponding proposed companion classifications:
 - a. Classification 3681(1), *Instrument Mfg. – electronic – professional or scientific – N.O.C.*
 - b. Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg. – N.O.C.*
 - c. Classification 3681(3), *Telecommunications Equipment Mfg.*
 - d. Classification 3681(4), *Audio/Video Electronic Products Mfg.*
 - e. Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*
3. Limiting an individual employee's annual payroll developed in the newly created Classification 8874 to the USRP's maximum annual payroll limitation applied to Classification 8859 and adjusting the advisory pure premium rate for the new classification to reflect the impact of the payroll limitation.
4. Undertaking a future review of the other 10 classifications in the Electronics Industry Group to assess if the computer programming and Standard Exception employees of employers assigned to these classifications warrant a different treatment from those of Classifications 3681 and 4112 employers.

Introduction

The electronics manufacturing industry has evolved, increasing integration between computer programming and electronics manufacturing operations. In the Electronics Industry Group, Classifications 3681 and 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, are the two largest classifications and employers assigned to these classifications typically retain computer programmers and/or design engineers to support their manufacturing operations.

Computer programming employers are typically assigned to Classifications 8859(1), *Computer Programming or Software Development*, or 8859(2), *Internet or Web-Based Application Development or Operation*. Computer programming operations that support an employer's own electronics manufacturing operations, however, should not be assigned to Classification 8859 and are typically assignable to

Classification 8810, *Clerical Office Employees*, based on the Standard Exceptions rule. Given the prevalence of hardware and software development activities that are often integral to the operations of electronics manufacturers assigned to Classifications 3681 and 4112, the computer programming and other clerical activities of these firms may be more like those typically found in businesses assigned to 8859 than to 8810. Therefore, the current classification procedure may result in disparate treatment for similar operations. A substantial share of the statewide Classification 8810 payroll (more than 20% between policy years 2014 and 2018) was reported for employers in the Electronics Industry Group, while about 8% of all reported payroll in Classification 8859 was from the Electronics Industry Group, some of which may not be consistent with the intended scope of Classification 8859.

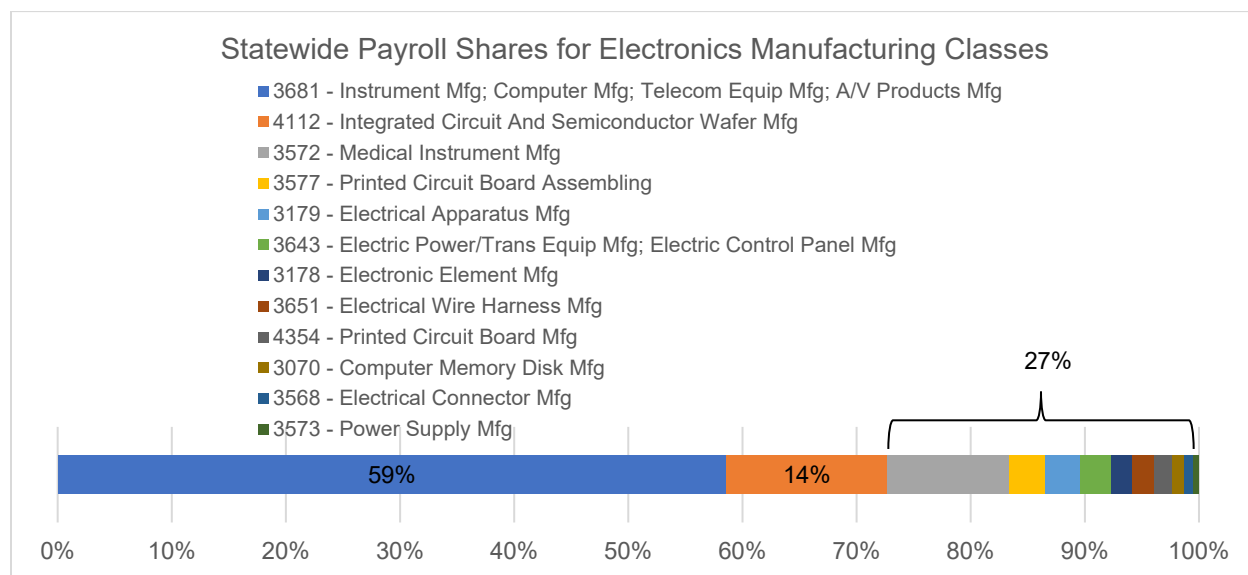
Given these concerns and the evolution of the electronics manufacturing industry, the WCIRB reviewed computer programming operations in connection with the Electronics Industry Group as part of a multi-year effort. Subsequent phases of this study will include an in-depth operational review of the other 10 classifications in the Electronics Industry Group in 2022 to assess which classifications belong in this group and a data analysis of the computer programming operations in non-electronics industries.

Analysis Approach

• Groupings of Employers in the Electronics Industry Group

The Electronics Industry Group consists of 12 classifications. As shown in Figure 1, Classification 3681 is by far the largest classification, accounting for 59% of the Electronics Industry Group payroll, followed by Classification 4112 (14% of the Industry Group payroll). Additionally, the loss to payroll ratios for Classifications 3681 and 4112 are much lower than those of the other 10 electronics manufacturing classifications (27% of the Industry Group payroll). Given the different payroll share and loss to payroll experience, three groupings of employers in the Electronics Industry Group were analyzed in this study: (1) Classification 3681 employers; (2) Classification 4112 employers and (3) other electronics manufacturing classifications employers.

Figure 1. Payroll Shares for Electronics Industry Group Classifications (PYs 2014-2018)



	Classification 3681	Classification 4112	All Other Electronics Mfg. Classifications
Capped Loss to Payroll Ratio	0.37	0.24	0.97

Staff analyzed the business operations, payroll and claim experience of these three groups, including the experience of (1) computer programming operations of electronics industry employers assigned to Classification 8859; (2) clerical operations and computer programming operations in support of hardware products manufacturing assigned to Classification 8810 and (3) outside sales operations assigned to Classification 8742. Staff also compared the experience of these electronics manufacturing employers to the statewide computer programming, clerical and outside sales experience to assess whether the experience of these three groups should continue to be assigned to Classification 8859, 8810 or 8742, respectively, or be treated differently.

- **Data Sources for Analysis**

Classification Inspection Reports: The WCIRB reviewed Classification Inspection Reports for employers in the Electronics Industry Group to better understand these employers' computer programming, clerical and outside sales activities.

Special Inspections: The WCIRB conducted special inspections of employers in the Electronics Industry Group to better understand these employers' computer programming, clerical and outside sales activities.

Industry Outreach: The WCIRB contacted members of the industry, including industry associations and insurers that underwrite significant components of this industry, to gain insight into the operational characteristics of computer programming in the Electronics Industry Group.

Unit Statistical Reports: The WCIRB analyzed historical Unit Statistical Report data at the latest report level for Classifications 8859, 8810 and 8742, including employers' payroll, loss experience and injury characteristics of claims, for policy years 2014 through 2018. Losses were limited to \$500,000 per claim to minimize large swings in the loss to payroll ratios over time.

Classification Relativity Data: Classification relativity data as reflected in the WCIRB's September 1, 2021 Regulatory Filing were used to analyze the impact of potential classification changes on electronics manufacturing employers.

Wage Report: The WCIRB's 2021 Wage, Payroll and Exposure Report for California Workers' Compensation was used to analyze the wage levels of computer programmers and clerical employees and estimate the amount of payroll in excess of the WCIRB's standard payroll limitation threshold for specified groupings of employers.

Analysis Results

- **Operational Analysis**

The Electronics Industry Group applies to employers engaged in electronic and electrical products manufacturing, assignable among 12 classifications. Classification 3681, the largest classification in the Industry Group, applies to electronic instrument, computer equipment and other audio/video and telecommunications equipment manufacturing. Classification 4112 applies to integrated circuit and semiconductor wafer manufacturing. Employers assigned to Classifications 3681 and 4112 typically retain computer programmers and/or design engineers to support their manufacturing operations, such as developing software for their hardware products and conducting virtual prototyping and testing. While the job duties and average wages of electronics manufacturing computer programmers are very similar to those of programmers assigned to Classification 8859, electronics manufacturing programmers are typically treated as Standard Exception employees and assigned to Classification 8810 as the manufacturers' operations do not meet the classification criteria to assign the programmers to Classification 8859.

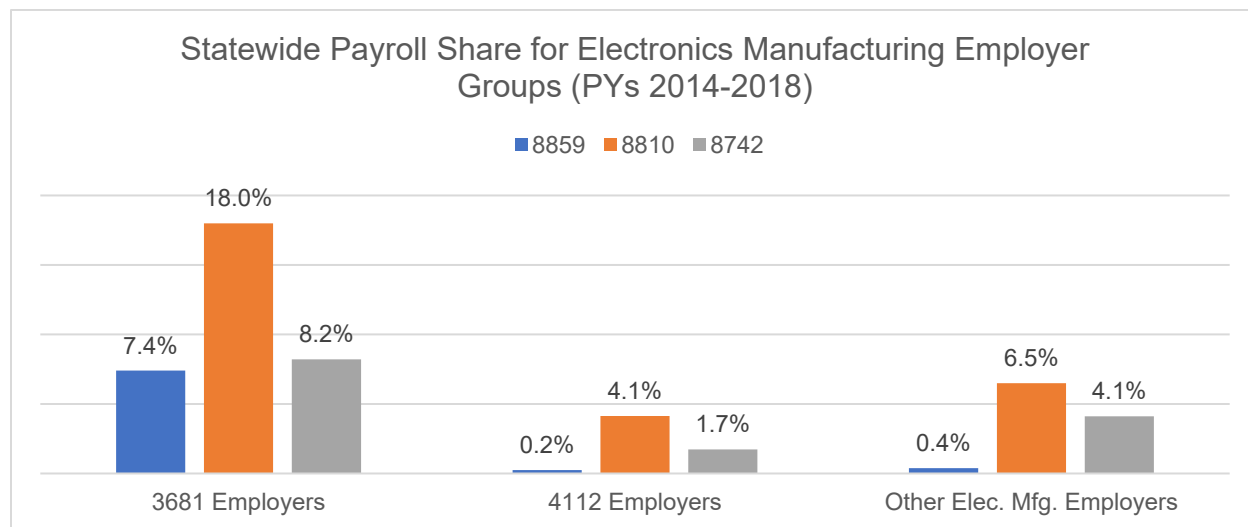
The other 10 classifications in the Electronics Industry Group have more diverse manufacturing operations, ranging from printed circuit board manufacturing, electrical apparatus manufacturing to computer memory disk manufacturing. It is also less common for these employers to retain computer programmers which is likely due to less computer programming integration being necessary to support their manufacturing operations.

In addition to computer programmers, employers assigned to all 12 electronics manufacturing classifications often employ clerical and outside sales employees to support their operations. As indicated above, employers assigned to Classifications 3681 and 4112 are typically more likely to employ computer programmers than those assigned to the 10 remaining Electronics Industry Group classifications. For Classifications 3681 and 4112 employers, as with Classification 8859 employers, there is no clear line of demarcation between their computer programmers and their clerical staff to the extent they all work exclusively in an office environment. With respect to outside sales employees for Classifications 3681 and 4112 employers, their job duties are comparable to the outside sales activities of Classification 8859 employers as well as those of Classification 8742 as a whole.

- **Payroll and Claim Experience of Computer Programming and Standard Exception Operations of Electronics Manufacturing Employers**

Overall, employers assigned to classifications in the Electronics Industry Group had more than 20% of the reported statewide Classification 8810 payroll (Figure 2). Classification 3681 employers had a significantly higher share of the reported statewide payroll for Classifications 8810, 8742 and 8859 than Classification 4112 employers and employers assigned to the other 10 electronics manufacturing classifications.

Figure 2. Statewide Payroll Share for Classifications 8810, 8742 and 8859 for Electronics Manufacturing Employers

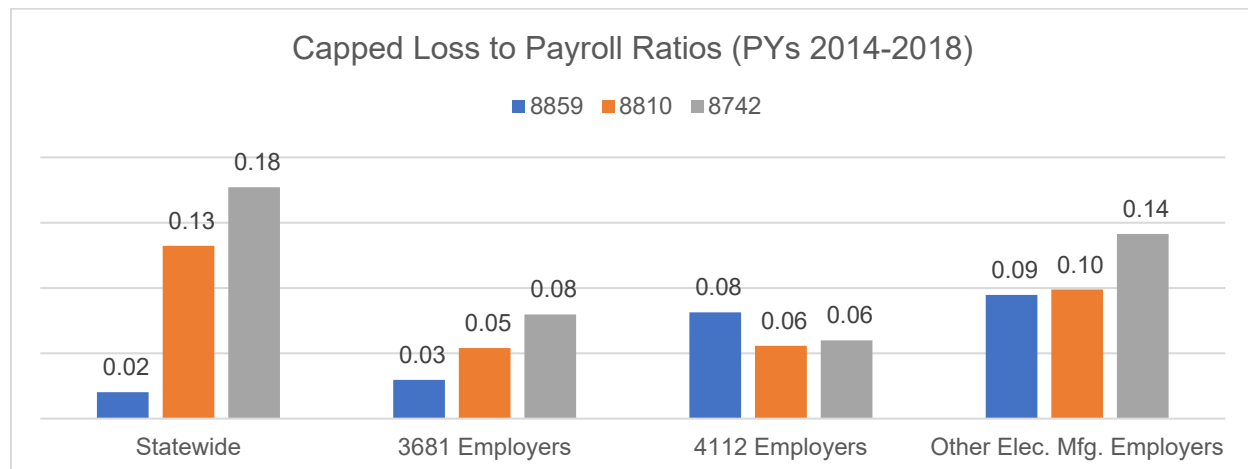


As shown in Figure 3, the loss to payroll ratios based on the Classification 8859 experience reported for electronics manufacturing employers were higher than those of the statewide Classification 8859 experience. The loss to payroll ratios for the 8810 clerical and 8742 outside sales operations of the Classifications 3681 and 4112 employers were both less than one-half of the loss to payroll ratios for these classifications as a whole.

Additionally, the loss to payroll ratios for the Classification 3681 employers' computer programming, clerical and outside sales operations assigned to Classifications 8810 and 8742 were relatively similar to

those for the Classification 4112 employers, suggesting that the computer programmers and Standard Exception employees of these two groups of employers share similar risk exposures.

Figure 3. Capped Loss to Payroll Ratios for Classifications 8810, 8742 and 8859 for Electronics Manufacturing Employers

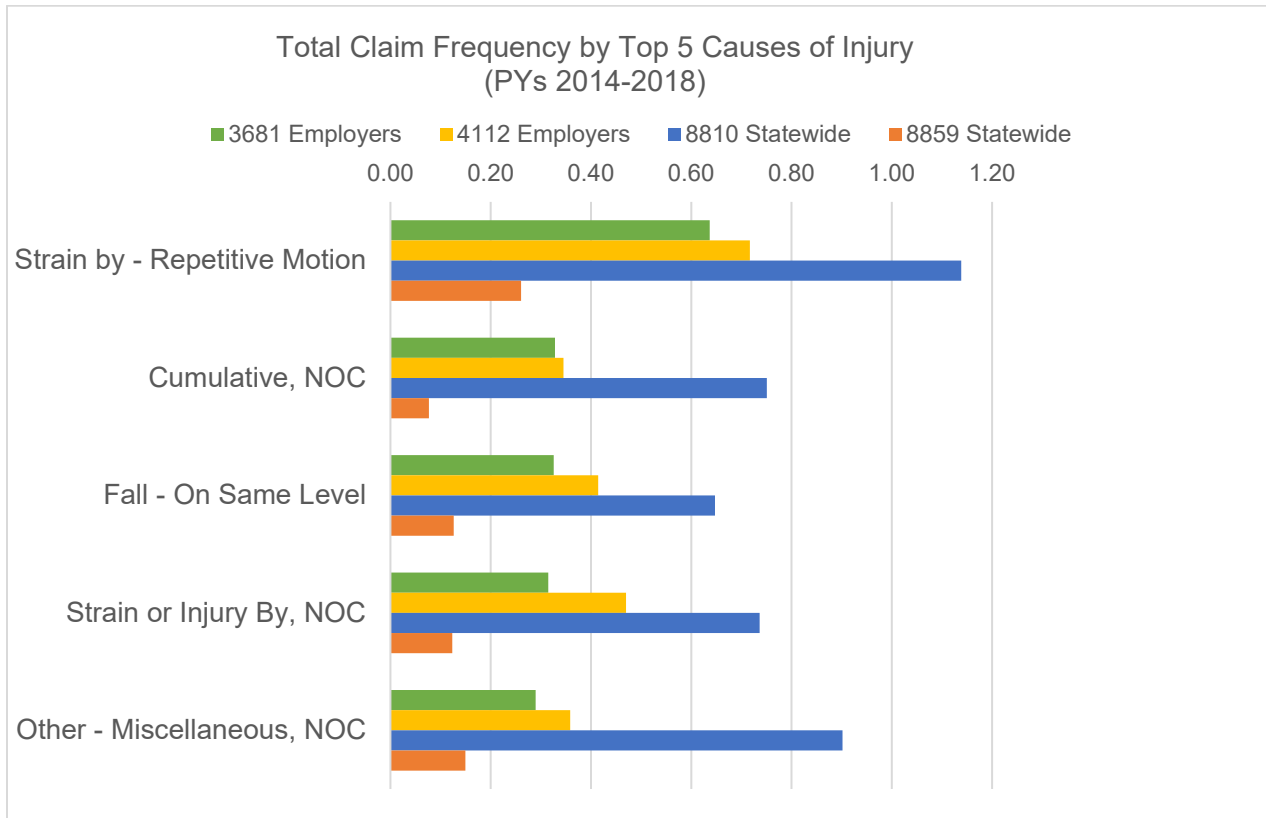


For the other electronics manufacturing employers, however, the loss to payroll ratios for their clerical and outside sales operations assigned to Classifications 8810 and 8742 are more similar to the statewide ratios than to those of Classifications 3681 and 4112 employers. Staff also analyzed Classification 3572, the largest classification of the 10 other electronics manufacturing classifications, and found that the loss and claim experience of the Classification 3572 employers' 8810 and 8742 operations were dissimilar to the 8810 and 8742 operations of employers assigned to Classifications 3681 and 4112. Given that the remaining 10 electronics manufacturing classifications have widely varied advisory pure premium rates³, ranging from \$0.28 to \$3.06 per \$100 of payroll, and potentially diverse operations, including the Standard Exception experience, the WCIRB recommends reviewing these 10 classifications in the future to assess whether their computer programming and Standard Exception operations warrant similar or different treatment from those of Classifications 3681 and 4112 employers. Therefore, the remainder of this analysis concentrated on employers assigned to Classifications 3681 and 4112.

The typical causes of injury for claims reported in Classification 8810 were similar between Classifications 3681 and 4112 employers (Figure 4). The leading causes of injury were predominantly strain and cumulative injuries, which are typical injuries for clerical employees. In addition, the claim frequencies of the typical causes of injury for the Classification 8810 experience of Classifications 3681 and 4112 employers were consistently lower than those for statewide Classification 8810 and higher than those for statewide Classification 8859. The patterns further suggest that the 8810 operations of Classifications 3681 and 4112 employers represent a mix of computer programming and clerical operations.

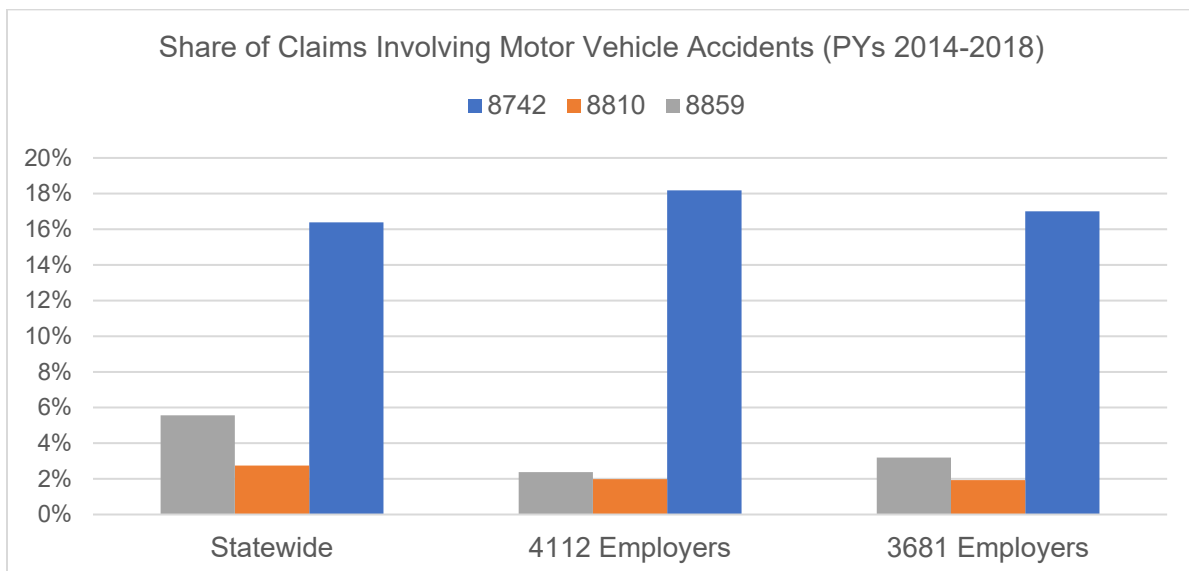
³ CDI's approved advisory pure premium rates as of September 1, 2021.

Figure 4. Total Claim Frequency by Top 5 Causes of Injury for Classification 8810 Operations of Electronics Manufacturing Employers



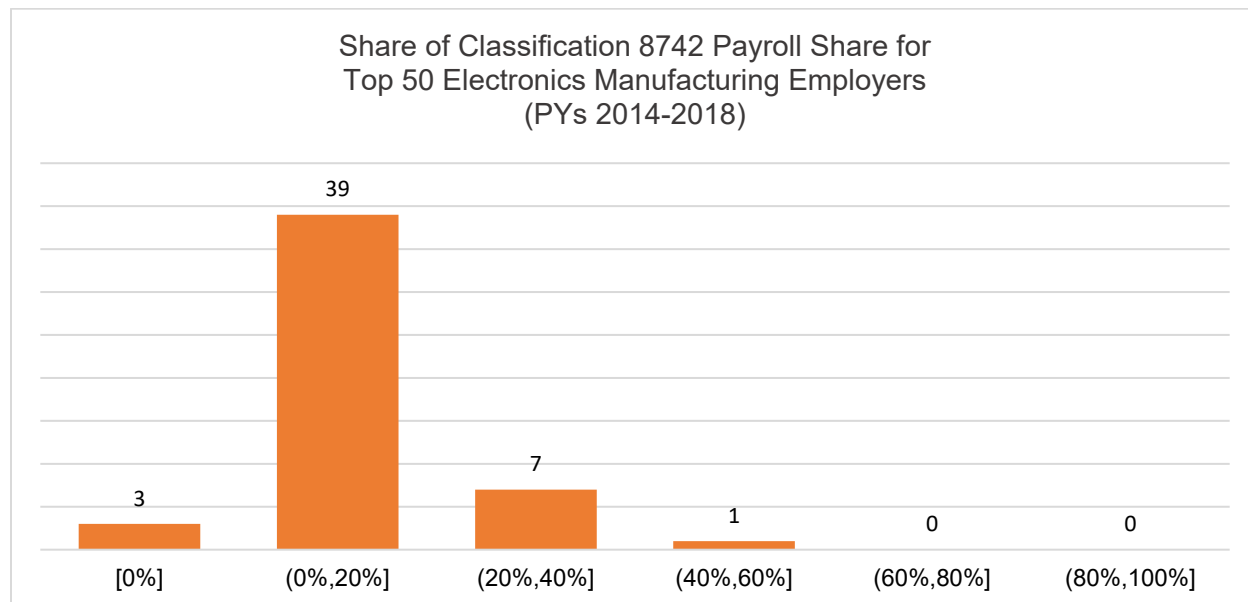
Given a higher travel exposure, outside sales operations of Classifications 3681 and 4112 employers have a larger share of claims involving motor vehicle accidents as compared to these employers' computer programming and clerical operations (Figure 5).

Figure 5. Share of Claims Involving Motor Vehicle Accidents for Electronics Manufacturing Employers



Staff reviewed the payroll distribution of Classification 8742 across the 50 largest electronics manufacturing employers, as modest disparity in payroll and claim characteristics among segments of a classification is less of a concern if the payroll split between the two segments is relatively consistent across policyholders within the classification. As shown in Figure 6, the relative share of reported Classification 8742 payroll for electronics manufacturing employers assigned to Classifications 3681 and 4112 was relatively consistent amongst the largest 50 employers, mostly under 20%. Therefore, the motor vehicle risk exposure appears to be relatively consistent for Classifications 3681 and 4112 employers.

Figure 6. Payroll Share of Classification 8742 for Top 50 Electronics Manufacturing Employers Assigned to Classifications 3681 and 4112



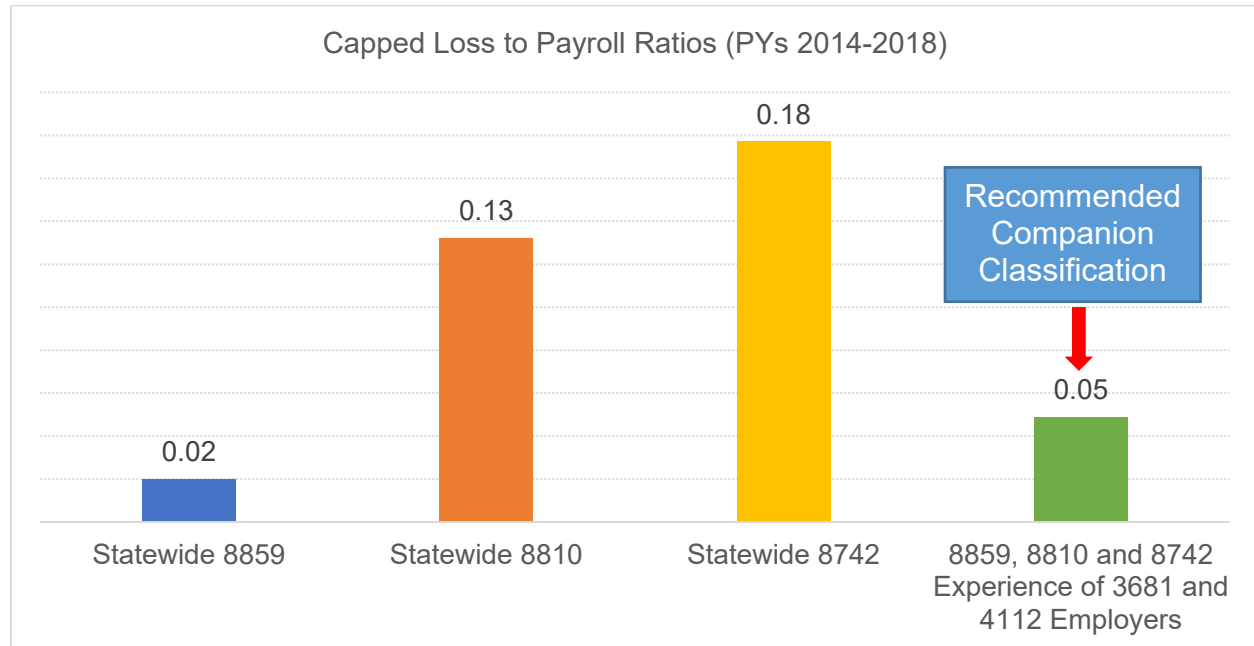
In summary, employers assigned to Classifications 3681 and 4112 typically retain computer programmers and/or design engineers to support their manufacturing operations. There is no clear line of demarcation between the operations of their computer programmers and their clerical staff to the extent they all work exclusively in an office environment. The loss to payroll experience and typical causes of injury for the 8810 computer programmers and clerical employees of Classifications 3681 and 4112 employers are different from the statewide 8859 and 8810 experience and appear to reflect a mix of statewide 8859 and 8810 experience, suggesting that a different treatment of computer programming and clerical employees of Classifications 3681 and 4112 employers is appropriate. Also, the loss to payroll ratio differentials for the computer programming and Standard Exception operations are much more similar to each other than to those of the statewide experience, suggesting the computer programming, clerical and outside sales operations of the two Electronics Industry Group classifications are reasonably homogenous and their exposure and loss experience can be grouped together for classification purposes.

- **Recommendation for a Companion Classification**

Based on this analysis, the WCIRB recommends establishing companion Classification 8874 to Classifications 3681 and 4112 to include all (1) hardware and software design and development performed by computer programmers and/or design engineers and (2) clerical and outside sales operations in connection with these employer's electronic products design and manufacturing operations. This would establish a clear, consistent and easy to administer approach for classifying this identifiable and homogenous group of operations. For consistency of application, the WCIRB recommends that Classification 8874 have alternate phraseologies (or suffixes) for each of the four alternate phraseologies of Classification 3681 as well as an alternate phraseology corresponding to Classification 4112.

As shown in Figure 7, the loss to payroll ratio for the proposed companion classification is higher than the statewide Classification 8859 experience, but significantly lower than the statewide experience for Classifications 8810 and 8742.

Figure 7. Comparison of Loss to Payroll Ratios between Statewide and the Proposed Companion Classification 8874



The WCIRB does not, however, recommend applying the companion classification to operations assigned to the other 10 electronics manufacturing classifications at this point as their diverse operations and relatively low prevalence of computer programming operations warrant an in-depth review of operations, payroll and loss experience in the future to determine if the same companion Classification 8874 should apply.

A number of classifications⁴, including Classification 8859, with a high proportion of employees with very high wage levels and no indication that the higher wages are correlated with higher loss costs, are subject to a limitation on an employee's payroll for workers' compensation purposes. For the proposed companion classification, which would include high-wage computer programmers, staff estimated approximately 20% of the payroll would be in excess of the payroll limitation threshold⁵ based on published wage information⁶ for computer programmers, clerical employees and outside salespersons of employers assigned to Classifications 3681 and 4112. Based on the loss and payroll analysis presented above, there is no indication that the higher wage level is correlated with higher loss costs. As a result, the WCIRB recommends applying the USRP's maximum annual payroll limitation to the employees assigned to the proposed companion classification.

⁴ Classifications such as 8859, 7607(2), *Audio Post-Production*, and 8803, *Auditing, Accounting or Management Consulting Services*, are subject to a maximum payroll limitation. The full payroll limitation adjustments for those classifications are 27%, 20% and 19%, respectively.

⁵ The maximum payroll limitation threshold in California effective September 1, 2021 is \$144,300.

⁶ Wage information is based on American Community Survey data by industry and occupation.

- **Impact Analysis**

Staff evaluated the impact of assigning experience to the proposed companion classification on electronics manufacturing employers assigned to Classifications 3681 and 4112⁷ as well as the indicated changes for Classifications 8859, 8810 and 8742 by removing the experience to be assigned to the proposed companion classification. Classification relativities for the proposed companion classification, Classification 8859 and the two Standard Exception classifications are included in Appendix II.

1. Selected Loss to Payroll Ratios for Computer Programing and Standard Exception Operations of Classifications 3681 and 4112 Employers Assigned to the Proposed Companion Classification

Table 1 shows that the selected loss to payroll ratio for the proposed companion classification for the clerical, computer programming and outside sales operations of Classifications 3681 and 4112 employers is 54.4% and 70.9% below the selected statewide loss to payroll ratios of Classifications 8810 and 8742, respectively. The large differences are mostly driven by the low loss to payroll ratios for the clerical and outside sales operations of the electronics manufacturing employers compared to the statewide Classifications 8810 and 8742 experience.

The selected loss to payroll ratio for the proposed companion classification for the clerical, computer programming and outside sales operations of Classifications 3681 and 4112 employers is 151.7% above the selected statewide loss to payroll ratio for Classification 8859. However, the proposed companion classification will not impact computer programming operations meeting the Multiple Enterprises rule.⁸

Table 1. Selected Loss to Payroll Ratios for Clerical, Computer Programing and Outside Sales Operations of Classifications 3681 and 4112 Employers Assigned to the Proposed Companion Classification

Current Classification	Current Selected Loss to Payroll Ratio	Selected Loss to Payroll Ratio Under Proposed Companion Classification	% Difference (B/A-1)
	(A)	(B)	
8810	0.160	0.073	-54.4%
8742	0.251	0.073	-70.9%
8859	0.029	0.073	+151.7%

2. Impact of Proposed Companion Classification on Classifications 3681 and 4112 Employers with Payroll Reported in Classifications 8810, 8742 or 8859

Staff analyzed the potential impact of the proposed companion classification on Classifications 3681 and 4112 employers based on the typical mix of Classifications 8810, 8742 and 8859 operations for these employers. The impact on individual employers would vary depending on their own mix of the three classifications. However, as shown in Table 2, based on historical average payroll splits among 8810, 8742 and 8859 operations for these employers, the selected loss to payroll ratio for the proposed companion classification would be 57.8% lower than that based on the current blend of 8810, 8742 and 8859 loss to payroll ratios.

⁷ The impact analysis did not adjust for the recommended payroll limitation.

⁸ Per the *California Workers' Compensation Uniform Statistical Reporting Plan—1995* (USRP), the Multiple Enterprises rule applies if an employer's business, conducted at one or more locations, consists of two or more distinct operations that do not normally prevail in the business described by a single classification. In this study, computer programming operations assigned to Classification 8859 as a separate enterprise that is not connected with any electronics manufacturing operations assigned to Classifications 3681 and 4112 will not be impacted by the companion classification.

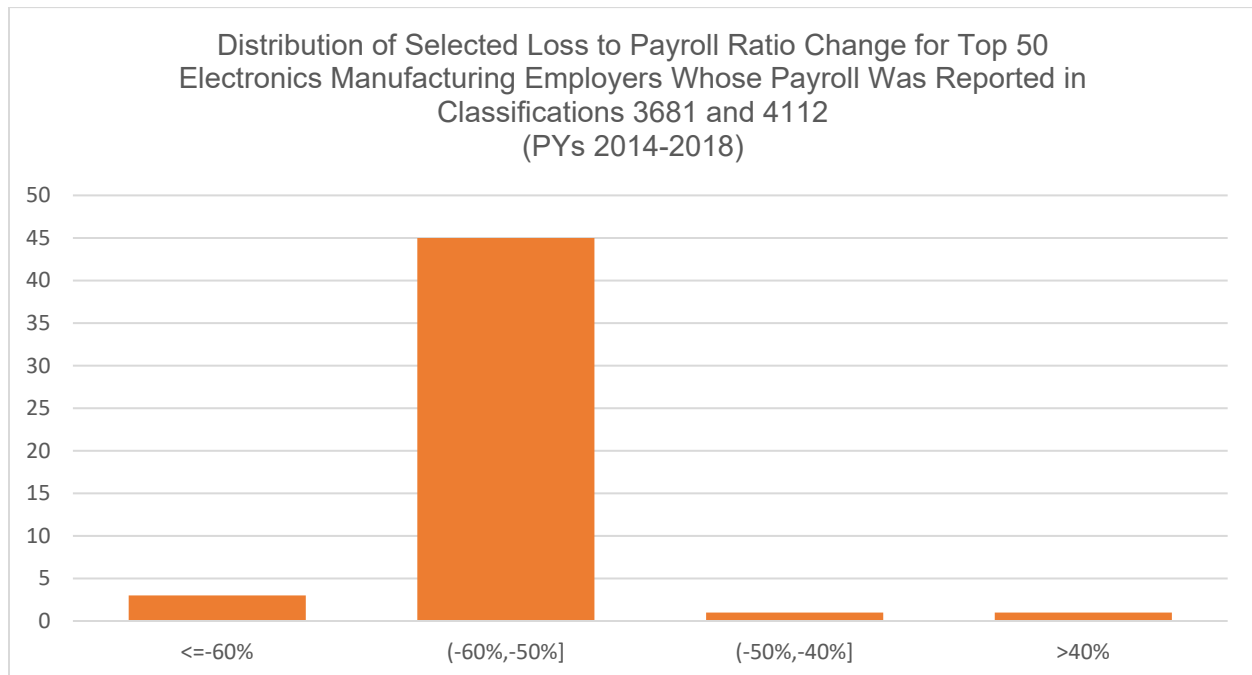
Table 2. Estimated Changes in the Selected Loss to Payroll Ratios for Classifications 3681 and 4112 Employers Currently with Payroll Reported in Classifications 8810, 8742 or 8859

Classifications 3681 and 4112 Employers	Current Classification Structure⁹	Proposed Classification Structure	% Difference
79%/18%/3% Payroll Reported in Classifications 8810, 8742 and 8859	0.173	0.073	-57.8%

For operations assigned to the proposed companion classification, the WCIRB does not recommend applying the standard 25% change limitation on the year-to-year classification relativity change in that (a) the impact will vary depending on an employer's mix of Classification 8810, 8742 and 8859 experience and (b) the impact of the large indicated increase for Classification 8859 experience is likely a maximum impact since, in some instances, the Multiple Enterprises rule will apply and not all Classification 8859 payroll for these employers will be reassigned to the proposed companion classification.

Figure 8 shows the estimated impact of the WCIRB's recommended change on the largest 50 employers assigned to Classifications 3681 and 4112 based on their individual mix of Classifications 8810, 8742 and 8859 payroll. Almost all of the employers that would be assigned to the proposed companion classification would experience a greater than 20% reduction in their selected loss to payroll ratios due to the significant reduction in the loss to payroll ratios for Classifications 8810 and 8742 under the proposed recommendation.

Figure 8. Change in Selected Loss to Payroll Ratios for Top 50 Employers Assigned to Classifications 3681 and 4112



⁹ The selected (unlimited) loss to payroll ratio in the current classification structure is the weighted average of the current selected (unlimited) loss to payroll ratio for Classifications 8810, 8742 and 8859 based on the average historical payroll shares reported in those three classifications, 79%, 18% and 3% for Classifications 8810, 8742 and 8859, respectively. The calculation of the selected loss to payroll ratio for the proposed companion classification is $79\% \times 0.160 + 18\% \times 0.251 + 3\% \times 0.029 = 0.173$.

3. Indicated Changes for Classifications 8810, 8742 and 8859 with the Proposed Companion Classification

Staff also analyzed the impact of the proposed companion classification on the statewide Classifications 8810, 8742 and 8859 loss to payroll ratios. As shown in Table 3, after moving the Classifications 3681 and 4112 employers' 8810, 8742 and 8859 experience to the proposed companion classification, the selected statewide loss-to-payroll ratios for Classifications 8810 and 8742 would be 14.4% and 5.2% higher, respectively. The increase is attributed to the significantly better-than-average loss to payroll experience in 8810 and 8742 for employers assigned to Classifications 3681 and 4112.

The selected statewide loss to payroll ratio for Classification 8859 would be 6.9% lower due to the higher-than-average Classification 8859 experience of Classification 3681 and 4112 employers being included in the proposed companion classification. However, this would likely be the maximum impact to Classification 8859 as Classifications 3681 and 4112 employers with computer programmers and Multiple Enterprises would continue to have payroll and loss experience reported in Classification 8859.¹⁰

Table 3. Impact of the Proposed Companion Classification on Classifications 8810, 8742 and 8859

Classification	Selected Loss to Payroll Ratio Before (A)	Selected Loss to Payroll Ratio Under Proposed Recommendation (B)	% Difference (B/A-1)
8810	0.160	0.183	14.4%
8742	0.251	0.264	5.2%
8859	0.029	0.027	-6.9%

Findings

The key findings of this study include:

1. Employers assigned to classifications in the Electronics Industry Group often conduct computer programming or design engineering operations assignable to Classification 8810. These computer programmers or design engineers often have similar job duties and average wages as those assigned to Classification 8859. It is more common for employers with payroll reported in Classifications 3681 and 4112 to have computer programming or design engineering operations than those with payroll reported in the other 10 classifications in the Electronics Industry Group.
2. The computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers have significantly lower loss to payroll ratios than the statewide experience reported in Classifications 8810 and 8742, *Salesperson – Outside*.
3. The loss to payroll ratio differentials between the 8859, 8810 and 8742 experience of Classifications 3681 and 4112 employers are much smaller than those of the statewide 8859, 8810 and 8742 experience, which suggests the computer programming, clerical and outside sales operations of the two Electronics Industry Group classifications share relatively similar exposure to losses.

¹⁰ The estimated impact on Classification 8859 in Table 3 is based on moving all 8859 operations of Classifications 3681 and 4112 employers to the proposed companion classification assuming no computer programming operations are separately classified as 8859 based on application of the Multiple Enterprises rule.

4. The 8810 experience of Classifications 3681 and 4112 employers share similar typical causes of injury. The claim frequencies for the typical causes of injury for these 8810 employees have been consistently lower than those for statewide Classification 8810 and consistently higher than those for statewide Classification 8859. This suggests that the 8810 experience of Classifications 3681 and 4112 employers reflects a mix of computer programming and clerical operations.
5. Outside sales operations of Classifications 3681 and 4112 employers have a larger share of claims involving motor vehicle accidents than these employers' computer programming and clerical operations. While motor vehicle loss exposure is somewhat higher for the outside sales operations, Classifications 3681 and 4112 employers generally have a consistent share of Classification 8742 payroll and, as a result, a relatively consistent motor vehicle loss exposure.
6. Given the homogeneity of the loss to payroll experience for computer programming and clerical operations of, and relatively consistent risk exposure to Classification 8742 losses among, Classifications 3681 and 4112 employers, the computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers could be combined.
7. Combining the computer programming, clerical and outside sales operations of Classifications 3681 and 4112 employers into a single companion classification would lead to an average decrease of 57.8% in the selected loss to payroll ratio for these operations.
8. Approximately 20% of the payroll assigned to Classifications 8810, 8742 and 8859 for employers assigned to Classifications 3681 and 4112 is estimated to be in excess of the maximum payroll limitation threshold in the *California Workers' Compensation Uniform Statistical Reporting Plan—1995* (USRP).¹¹ In addition, there is no indication that the higher wages are correlated with higher loss costs.
9. The advisory pure premium rates for the other 10 classifications in the Electronics Industry Group vary significantly. These 10 Industry Group classifications have more diverse manufacturing operations, and it is less common for these employers to retain computer programmers to support their manufacturing operations.

Recommendations

Based on these findings, the WCIRB recommends:

1. Establishing companion Classification 8874 in the Electronics Industry Group, with the following five alternate phraseologies (or suffixes), to apply to the hardware and software design and development, clerical and outside sales operations performed in connection with manufacturing operations assigned Classifications 3681 and 4112:
 - a. Classification 8874(1), *Instrument Mfg. – electronic – professional or scientific – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons – N.O.C.*
 - b. Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons – N.O.C.*
 - c. Classification 8874(3), *Telecommunications Equipment Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*

¹¹ The maximum payroll limitation threshold in California effective September 1, 2021 is \$144,300.

- d. Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*
 - e. Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons*
- 2. Amending the following classifications to reference the corresponding proposed companion classifications:
 - a. Classification 3681(1), *Instrument Mfg. – electronic – professional or scientific – N.O.C.*
 - b. Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg. – N.O.C.*
 - c. Classification 3681(3), *Telecommunications Equipment Mfg.*
 - d. Classification 3681(4), *Audio/Video Electronic Products Mfg.*
 - e. Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*
 - 3. Limiting an individual employee's annual payroll developed in the newly created Classification 8874 to the USRP's maximum annual payroll limitation applied to Classification 8859 and adjusting the advisory pure premium rate for the new classification to reflect the impact of the payroll limitation.
 - 4. Undertaking a future review of the other 10 classifications in the Electronics Industry Group to assess if the computer programming and Standard Exception employees of employers assigned to these classifications warrant a different treatment from those of Classifications 3681 and 4112 employers.

Appendix I – History of Classification 8859 and the Electronics Industry Group

The following is a timeline of significant changes to the scope and application of Classifications 8859:

- **1993:** Classification 8859, *Computer Programming or Software Development – all employees – including Clerical Office Employees and Salespersons*, was established to apply to employers engaged in either the development of generic, standard or custom software products or in customizing such software products for clients on a fee basis.
- **2005:** Classification 8859(2), *Internet or Web-Based Application Development or Creation*, was established based on a 2003 California Department of Insurance, Administrative Hearing Bureau decision. Classification 8859(2) applies to employers that specialize in the development and/or operation of Internet or web-based applications and websites, including employers engaged in such operations for other concerns. Classification 8859, *Computer Programming or Software Development – all employees – including Clerical Office Employees and Outside Salespersons* was renamed to 8859(1).
- **2020:** USRP maximum annual payroll limitation was made applicable to Classifications 8859(1) and 8859(2).
- **2021:** Based on the establishment of Classification 8871, *Clerical Telecommuter Employees – N.O.C.*, as a Standard Exception, Classifications 8859(1) and 8859(2) were among 41 classifications amended to include *Clerical Telecommuter Employees*.

The following is a list of classifications in the Electronics Industry Group with a timeline of significant changes to the scope and application of the Electronics Industry Group:

List of Classifications for the Electronics Industry Group:

3070, *Computer Memory Disk Mfg. – rigid*
3178, *Electronic Element Mfg. – N.O.C.*
3179, *Electrical Apparatus Mfg. – N.O.C.*
3568, *Electrical Connector Mfg.*
3572, *Medical Instrument Mfg. – electronic – diagnostic or treatment*
3573, *Power Supply Mfg.*
3577, *Printed Circuit Board Assembling – by contractor*
3643(1), *Electric Power or Transmission Equipment Mfg. – N.O.C.*
3643(2), *Electric Control Panel or Switchgear Mfg.*
3651, *Electrical Wire Harness Mfg.*
3681(1), *Instrument Mfg. – electronic – professional or scientific – N.O.C.*
3681(2), *Computer or Computer Peripheral Equipment Mfg. – N.O.C.*
3681(3), *Telecommunications Equipment Mfg.*
3681(4), *Audio/Video Electronic Products Mfg.*
4112, *Integrated Circuit and Semiconductor Wafer Mfg.*
4354, *Printed Circuit Board Mfg.*

- **1915:** Classifications 3685, *Instrument Mfg.*, and 3681, *Telephone, Telegraph or Radio Apparatus Mfg. – N.O.C.*, were original *Manual of Compensation and Liability Insurance* classifications. Classification 3685 was eliminated and reassigned to Classification 3681 in 1969.

- **1996:**
 - Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, was established to apply to employers engaged in the manufacture of integrated circuits and similar electronic components using semiconductor processing methods such as thin film deposition, high temperature oxidation and diffusion, micron-range photolithography and wet and dry etching.
 - Classifications 3567, *Computer or Computer Peripheral Equipment Manufacturing*, 3578, *Telecommunications Equipment Manufacturing*, and 3566, *Audio/Visual Electronic Products Manufacturing* were established after the WCIRB's review of the electronics industry in 1995. They were eliminated as unique classifications and established as alternate phraseologies (or suffixes) to Classification 3681(1), *Instrument Mfg. – electronic*, as Classifications 3681(2), 3681(3) and 3681(4), respectively, in 2006.
 - The Electronics Industry Group was created by consolidating various related classifications for employers engaged in the manufacture of electronic and electrical products.
- **2002:** Classification 3579, *Telephone or Telephone Equipment Mfg.*, originally part of the Electronics Industry Group, was eliminated and operations assigned to 3579 were assigned to Classification 3578, *Radio or Television Broadcasting/Receiving Equipment Mfg.*

Appendix II – Classification Relativities

Table 1: Classification 8810 – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	189,497,179,829	130,397,794	139,291,542	269,689,336	0.142
2018	203,366,292,609	140,978,895	150,029,132	291,008,027	0.143
Total	392,863,472,438	271,376,689	289,320,674	560,697,363	

Adjusted Loss to Payroll Ratio 0.143
 Selected Loss to Payroll Ratio 0.160

Credibility	
Indemnity	Medical
1.00	1.00

Table 2: Classification 8742 – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	51,812,303,094	53,479,303	46,232,392	99,711,695	0.192
2018	54,369,144,142	58,571,464	66,578,156	125,149,620	0.230
Total	106,181,447,236	112,050,767	112,810,548	224,861,315	

Adjusted Loss to Payroll Ratio 0.212
 Selected Loss to Payroll Ratio 0.251

Credibility	
Indemnity	Medical
1.00	1.00

Table 3: Classification 8859 – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	70,706,401,994	9,381,673	9,604,553	18,986,226	0.027
2018	78,242,941,363	9,109,419	10,436,479	19,545,898	0.025
Total	148,949,343,357	18,491,092	20,041,032	38,532,124	

Adjusted Loss to Payroll Ratio 0.026
 Selected Loss to Payroll Ratio 0.029

Credibility	
Indemnity	Medical
1.00	1.00

Table 4: Proposed Companion Classification – Classification Relativity at Policy Year 2021 Level¹²

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	46,248,779,105	14,274,827	14,768,970	29,043,797	0.063
2018	47,436,782,576	16,001,909	16,173,513	32,175,422	0.068
Total	93,685,561,681	30,276,736	30,942,483	61,219,219	

Adjusted Loss to Payroll Ratio 0.065
Selected Loss to Payroll Ratio 0.073

Credibility	
Indemnity	Medical
1.00	1.00

Table 5: Classification 8810 Under the Proposed Change – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	152,182,925,880	120,555,789	128,914,644	249,470,433	0.164
2018	163,108,167,328	128,228,272	136,938,630	265,166,902	0.163
Total	315,291,093,208	248,784,061	265,853,274	514,637,335	

Adjusted Loss to Payroll Ratio 0.163
Selected Loss to Payroll Ratio 0.183

Credibility	
Indemnity	Medical
1.00	1.00

Table 6: Classification 8742 Under the Proposed Change – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	46,683,288,872	50,612,861	43,720,177	94,333,038	0.202
2018	49,361,734,146	55,795,508	64,026,848	119,822,356	0.243
Total	96,045,023,018	106,408,369	107,747,025	214,155,394	

Adjusted Loss to Payroll Ratio 0.223
Selected Loss to Payroll Ratio 0.264

Credibility	
Indemnity	Medical
1.00	1.00

¹² Payroll and loss adjustment factors used to calculate the adjusted payroll and losses for the proposed companion classification are based on the same adjustment factors as Classification 8810.

Table 7: Classification 8859 Under the Proposed Change – Classification Relativity at Policy Year 2021 Level

Policy Year	Adjusted Payroll	Adjusted Indemnity Losses	Adjusted Medical Losses	Adjusted Total Losses	Adjusted Loss to Payroll Ratio (00s)
2017	67,926,999,842	8,307,887	8,550,418	16,858,305	0.025
2018	76,666,755,473	8,209,837	9,557,946	17,767,783	0.023
Total	144,593,755,314	16,517,724	18,108,365	34,626,089	

Adjusted Loss to Payroll Ratio	0.024
Selected Loss to Payroll Ratio	0.027

Credibility	
Indemnity	Medical
1.00	1.00

Recommendation

Amend Part 3, *Standard Classification System*, Section VII, *Standard Classifications*, Rule 1, *Classification Section*, Subrule a, *Industry Groups*, for consistency with other industry group naming conventions.

PROPOSED

Section VII – Standard Classifications

1. Classification Section

This section contains an alphabetical listing of classifications that describe most occupations, employments, industries and businesses. The classifications are organized as follows:

a. Industry Groups

-
-
-
- (3) Electronics Industry
-
-
-

* * * * *

Recommendation

Amend Classification 3681(4), *Audio/Video Electronic Products Mfg.*, which is part of the Electronics Industry Group, to reference the corresponding proposed companion Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development*.

PROPOSED

ELECTRONICS INDUSTRY

AUDIO/VIDEO ELECTRONIC PRODUCTS MFG. – all other employees

3681(4)

This classification applies to the manufacture of consumer ~~and/or~~ professional electronic audio ~~and/or~~ video equipment, including but not limited to audio ~~and/or~~ video recording, playback ~~and/or~~ editing equipment, sound amplifiers, intercoms, televisions and closed-circuit television equipment, automobile sound systems, motion picture ~~and/or~~ still picture cameras, electronic musical instruments including keyboards and synthesizers, and coin-operated video games. This classification includes the shop repair of audio/video equipment by the manufacturer.

The manufacture of speakers shall be classified as 3683, *Speaker Mfg.*

The installation, service or repair of portable, freestanding or built-in audio/video equipment away from the shop shall be classified as 9516, *Television, Video, Audio or Radio Equipment Installation, Service or Repair*.

The installation, service or repair of electronic equipment, including but not limited to audio systems, alarms, ignition interlock devices, vehicle locating systems, navigation systems and entertainment systems in automobiles, trucks or vans shall be classified as 8370, *Automobile or Truck Radio, Alarm or Electronic Equipment Installation, Service or Repair*.

Also refer to companion Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development*.

* * * * *

Recommendation

Establish Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development*, as a companion classification in the Electronics Industry Group to apply to hardware or software design or development and clerical office or outside sales operations performed in connection with manufacturing operations assigned to Classification 3681(4), *Audio/Video Electronic Products Mfg.*, direct that the maximum payroll amount be prorated based upon the number of weeks in the policy period when the policy is in force for less than a 12-month period and limit an employee's annual payroll to \$149,500.

PROPOSED

ELECTRONICS

AUDIO/VIDEO ELECTRONIC PRODUCTS MFG. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons **8874(4)**

The entire remuneration of each employee shall be included, subject to a maximum of \$149,500 per year. When the policy is in force for less than a 12-month period, the maximum payroll amount shall be prorated based upon the number of weeks in the policy period.

This classification applies to employees engaged exclusively in hardware or software design or development, computer aided design, or clerical or outside sales operations in connection with the employer's consumer or professional electronic audio or video products manufacturing operations.

This classification does not apply to employees engaged in the manufacture, assembly, repair, testing or otherwise handling of electronic audio or video equipment or prototypes in connection with the employer's manufacturing operations.

Also refer to companion Classification 3681(4), *Audio/Video Electronic Products Mfg.*

* * * * *

Recommendation

Amend Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg.*, which is part of the Electronics Industry Group, to reference the corresponding proposed companion Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development*.

PROPOSED

ELECTRONICS INDUSTRY

COMPUTER OR COMPUTER PERIPHERAL EQUIPMENT MFG. – all other employees – N.O.C. 3681(2)

This classification applies to the manufacture of personal, desktop, laptop, notebook, tablet ~~an-~~
~~do~~r mainframe computers ~~and~~
~~or~~ servers. This classification also applies to the manufacture of electronic computer peripheral equipment, including but not limited to monitors, terminals, printers, computer mouse devices, keyboards, disk drives, logic boards, motherboards and computer modems. This classification includes shop repair of computer or computer peripheral equipment by the manufacturer.

The repair or installation of computer or computer peripheral equipment away from the shop shall be separately classified as 5193, *Computer or Telephone System or Equipment Installation, Service or Repair*.

Also refer to companion Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development*.

* * * * *

Recommendation

Establish Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development*, as a companion classification in the Electronics Industry Group to apply to hardware or software design or development and clerical office or outside sales operations performed in connection with manufacturing operations assigned to Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg.*, direct that the maximum payroll amount be prorated based upon the number of weeks in the policy period when the policy is in force for less than a 12-month period and limit an employee's annual payroll to \$149,500.

PROPOSED

ELECTRONICS

COMPUTER OR COMPUTER PERIPHERAL EQUIPMENT MFG. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons – N.O.C. 8874(2)

The entire remuneration of each employee shall be included, subject to a maximum of \$149,500 per year. When the policy is in force for less than a 12-month period, the maximum payroll amount shall be prorated based upon the number of weeks in the policy period.

This classification applies to employees engaged exclusively in hardware or software design or development, computer aided design, or clerical or outside sales operations in connection with the employer's computer or computer peripheral equipment manufacturing operations.

This classification does not apply to employees engaged in the manufacture, assembly, repair, testing or otherwise handling of computer hardware, computer peripheral equipment or prototypes in connection with the employer's manufacturing operations.

Also refer to companion Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg.*

* * * * *

Recommendation

Amend Classification 3681(1), *Instrument Mfg.*, which is part of the Electronics Industry Group, to reference the corresponding proposed companion Classification 8874(1), *Instrument Mfg. – electronic – professional or scientific – hardware or software design or development.*

PROPOSED

ELECTRONICS INDUSTRY

INSTRUMENT MFG. – electronic – professional or scientific – all other employees – N.O.C. 3681(1)

This classification applies to the manufacture or shop repair of electronic instruments that are not specifically described by another classification, including but not limited to electronic altimeters, air speed indicators and telemetry instruments, electronic centrifuges, cell sequencers, bio-sensor equipment, mass spectrometers, electronic scales, programmable electronic control systems, electronic point of sale (POS) systems, calculators, electron ~~and~~ or laser microscopes, electron accelerators ~~and~~ or fraction collectors, electronic toxic gas or vapor detection systems, radiation monitoring equipment, ohm meters, frequency synthesizers and printed circuit board test equipment. This classification also applies to the manufacture of electronic or electronically controlled manufacturing equipment for the semiconductor industry, including but not limited to vapor ovens, wafer inspection stations, wafer probe systems, wet processing equipment, photo mask inspection equipment, diffusion etching machines, wafer cleaning equipment, wafer dicing saws and plasma etching machines.

This classification also applies to the manufacture or fee-based shop repair of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds.

The operating crew of Unmanned Aircraft Systems (aerial drones) with a total combined weight of less than 55 pounds, including but not limited to test flight operations performed by the manufacturer shall be classified in accordance with Section III, Rule 5, *General Inclusions*.

The installation or repair of instruments, or the repair of Unmanned Aircraft Systems (aerial drones) with a total combined weight of less than 55 pounds, away from shop shall be separately classified as 5128, *Instrument Installation, Service or Repair*.

The manufacture of Unmanned Aircraft Systems (aerial drones) with a total combined weight of 55 pounds or heavier shall be classified as 3830(2), *Unmanned Aircraft System Mfg.*

The manufacture of electronic medical equipment used for diagnostic or treatment purposes shall be classified as 3572, *Medical Instrument Mfg.*

The manufacture of non-electronic instruments shall be classified as 3682, *Instrument Mfg. – non-electronic.*

The manufacture of industrial robotic systems shall be classified as 3560(2), *Machinery Mfg. – industrial*, or 3560(3), *Machinery Mfg. – material handling equipment.*

Also refer to companion Classification 8874(1), *Instrument Mfg. – electronic – professional or scientific – hardware or software design or development.*

* * * * *

Recommendation

Establish Classification 8874(1), *Instrument Mfg. – electronic – professional or scientific – hardware or software design or development*, as a companion classification in the Electronics Industry Group to apply to hardware or software design or development and clerical office or outside sales operations performed in connection with manufacturing operations assigned to Classification 3681(1), *Instrument Mfg. – electronic – professional or scientific*, direct that the maximum payroll amount be prorated based upon the number of weeks in the policy period when the policy is in force for less than a 12-month period and limit an employee's annual payroll to \$149,500.

PROPOSED

ELECTRONICS

INSTRUMENT MFG. – electronic – professional or scientific – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons **8874(1)**

The entire remuneration of each employee shall be included, subject to a maximum of \$149,500 per year. When the policy is in force for less than a 12-month period, the maximum payroll amount shall be prorated based upon the number of weeks in the policy period.

This classification applies to employees engaged exclusively in hardware or software design or development, computer aided design, or clerical or outside sales operations in connection with the employer's electronic instrument manufacturing operations.

This classification does not apply to employees engaged in the manufacture, assembly, repair, testing or otherwise handling of electronic instruments or prototypes in connection with the employer's manufacturing operations.

Also refer to companion Classification 3681(1), *Instrument Mfg. – electronic – professional or scientific.*

* * * * *

Recommendation

Amend Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, which is part of the Electronics Industry Group, to reference the corresponding proposed companion Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development*.

PROPOSED

ELECTRONICS INDUSTRY

INTEGRATED CIRCUIT AND SEMICONDUCTOR WAFER MFG. – all other employees

4112

This classification applies to the manufacture of integrated circuits using semiconductor processing methods, including but not limited to thin film deposition, high temperature oxidation and diffusion, micron-range photo-lithography, and wet and/or dry etching. Each integrated circuit or wafer may contain tens of thousands of miniaturized electronic components, including but not limited to transistors, resistors, capacitors and diodes. This classification also applies to the manufacture of semiconductor wafers and/or chipsets consisting of grouped microchips.

This classification also applies to the hermetic packaging of integrated circuits within pin grid arrays.

The manufacture of transistors, resistors, capacitors, diodes and similar electronic components that are not contained on an integrated circuit chip or semiconductor wafer shall be classified as 3178, *Electronic Element Mfg.*

Also refer to companion Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development*.

* * * * *

Recommendation

Establish Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development*, as a companion classification in the Electronics Industry Group to apply to hardware or software design or development and clerical office or outside sales operations performed in connection with manufacturing operations assigned to Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, direct that the maximum payroll amount be prorated based upon the number of weeks in the policy period when the policy is in force for less than a 12-month period and limit an employee's annual payroll to \$149,500.

PROPOSED

ELECTRONICS

INTEGRATED CIRCUIT AND SEMICONDUCTOR WAFER MFG. – hardware or software design or development – including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons

8874(5)

The entire remuneration of each employee shall be included, subject to a maximum of \$149,500 per year. When the policy is in force for less than a 12-month period, the

maximum payroll amount shall be prorated based upon the number of weeks in the policy period.

This classification applies to employees engaged exclusively in hardware or software design or development, computer aided design, or clerical or outside sales operations in connection with the employer's integrated circuit or semiconductor wafer manufacturing operations.

This classification does not apply to employees engaged in the manufacture, assembly, repair, testing or otherwise handling of integrated circuits or semiconductor wafers or prototypes in connection with the employer's manufacturing operations.

Also refer to companion Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*

* * * * *

Recommendation

Amend Classification 3681(3), *Telecommunications Equipment Mfg.*, which is part of the Electronics Industry Group, to reference the corresponding proposed companion Classification 8874(3), *Telecommunications Equipment Mfg.– hardware or software design or development.*

PROPOSED

ELECTRONICS INDUSTRY

TELECOMMUNICATIONS EQUIPMENT MFG. – all other employees

3681(3)

This classification applies to the manufacture of electronic telecommunications equipment, including but not limited to telephones, cellular telephones, telephone equipment, telephone answering systems, military communication equipment, professional broadcasting/receiving equipment, wireless communication equipment, and related equipment used to transmit, receive, route or amplify data. This classification includes the shop repair of telecommunications equipment by the manufacturer.

The installation or repair of telecommunications equipment away from the shop shall be separately classified as 5193, *Computer or Telephone System or Equipment Installation, Service or Repair.*

The manufacture of consumer ~~and/or~~ professional audio ~~and/or~~ video equipment shall be classified as 3681(4), *Audio/Video Electronic Products Mfg.*

Also refer to companion Classification 8874(3), *Telecommunications Equipment Mfg.– hardware or software design or development.*

* * * * *

Recommendation

Establish Classification 8874(3), *Telecommunications Equipment Mfg. – hardware or software design or development*, as a companion classification in the Electronics Industry Group to apply to hardware or software design or development and clerical office or outside sales operations performed in connection with manufacturing operations assigned to Classification 3681(3), *Telecommunications Equipment Mfg.*, direct that the maximum payroll amount be prorated based upon the number of weeks in the policy period when the policy is in force for less than a 12-month period and limit an employee's annual payroll to \$149,500.

PROPOSED

ELECTRONICS

TELECOMMUNICATIONS EQUIPMENT MFG.– hardware or software design or development – 8874(3)
including Clerical Office Employees, Clerical Telecommuter Employees and Outside Salespersons

The entire remuneration of each employee shall be included, subject to a maximum of \$149,500 per year. When the policy is in force for less than a 12-month period, the maximum payroll amount shall be prorated based upon the number of weeks in the policy period.

This classification applies to employees engaged exclusively in hardware or software design or development, computer aided design, or clerical or outside sales operations in connection with the employer's electronic telecommunications equipment manufacturing operations.

This classification does not apply to employees engaged in the manufacture, assembly, repair, testing or otherwise handling of electronic telecommunications equipment or prototypes in connection with the employer's manufacturing operations.

Also refer to companion Classification 3681(3), *Telecommunications Equipment Mfg.*

* * * * *

Cross-Reference Updates

Recommendation

Amend the cross-reference for Classification 3681(4), *Audio/Video Electronic Products Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

AUDIO/VIDEO ELECTRONIC PRODUCTS MFG. – all other employees

See Electronics ~~Industry~~.

* * * * *

Recommendation

Establish a new cross-reference for Classification 8874(4), *Audio/Video Electronic Products Mfg. – hardware or software design or development*, which is part of the Electronics Industry Group, for consistency with other proposed changes.

PROPOSED

AUDIO/VIDEO ELECTRONIC PRODUCTS MFG. – hardware or software design or development

See Electronics.

* * * * *

Recommendation

Amend the cross-reference for Classification 3070, *Computer Memory Disk Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

COMPUTER MEMORY DISK MFG. – rigid

See Electronics ~~Industry~~.

* * * * *

Recommendation

Amend the cross-reference for Classification 3681(2), *Computer or Computer Peripheral Equipment Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

COMPUTER OR COMPUTER PERIPHERAL EQUIPMENT MFG. – all other employees

See Electronics ~~Industry~~.

* * * * *

Recommendation

Establish a new cross-reference for Classification 8874(2), *Computer or Computer Peripheral Equipment Mfg. – hardware or software design or development*, which is part of the Electronics Industry Group, for consistency with other proposed changes.

PROPOSED

**COMPUTER OR COMPUTER PERIPHERAL EQUIPMENT MFG. – hardware or software design
or development**

See Electronics.

* * * * *

Recommendation

Amend the cross-reference for Classification 3643(2), *Electric Control Panel or Switchgear Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRIC CONTROL PANEL OR SWITCHGEAR MFG.

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 3643(1), *Electric Power or Transmission Equipment Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRIC POWER OR TRANSMISSION EQUIPMENT MFG.

See Electronics Industry.

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Recommendation

Amend the cross-reference for Classification 3179, *Electrical Apparatus Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRICAL APPARATUS MFG.

See Electronics Industry.

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Recommendation

Amend the cross-reference for Classification 3568, *Electrical Connector Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRICAL CONNECTOR MFG.

See Electronics Industry.

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Recommendation

Amend the cross-reference for Classification 3651, *Electrical Wire Harness Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRICAL WIRE HARNESS MFG.

See Electronics Industry.

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Recommendation

Amend the cross-reference for Classification 3178, *Electronic Element Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

ELECTRONIC ELEMENT MFG.

See Electronics Industry.

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Recommendation

Establish a new cross-reference for Classification 8874(1), *Instrument mfg. – electronic – professional or scientific – hardware or software design or development*, which is part of the Electronics Industry Group, for consistency with other proposed changes.

PROPOSED

INSTRUMENT MFG. – electronic – professional or scientific – hardware or software design or development

See Electronics.

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Recommendation

Amend the cross-reference for Classification 3681(1), *Instrument Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

INSTRUMENT MFG. – electronic – professional or scientific – N.O.C.

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 4112, *Integrated Circuit and Semiconductor Wafer Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

INTEGRATED CIRCUIT AND SEMICONDUCTOR WAFER MFG. – all other employees

See Electronics ~~Industry~~.

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Recommendation

Establish a new cross-reference for Classification 8874(5), *Integrated Circuit and Semiconductor Wafer Mfg. – hardware or software design or development*, which is part of the Electronics Industry Group, for consistency with other proposed changes.

PROPOSED

INTEGRATED CIRCUIT AND SEMICONDUCTOR WAFER MFG. – hardware or software design or development

See Electronics.

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Recommendation

Amend the cross-reference for Classification 3572, *Medical Instrument Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

MEDICAL INSTRUMENT MFG.

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 3573, *Power Supply Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

POWER SUPPLY MFG.

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 3577, *Printed Circuit Board Assembling*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

PRINTED CIRCUIT BOARD ASSEMBLING – by contractor

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 4354, *Printed Circuit Board Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

PRINTED CIRCUIT BOARD MFG.

See Electronics ~~Industry~~.

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Recommendation

Amend the cross-reference for Classification 3681(3), *Telecommunications Equipment Mfg.*, which is part of the Electronics Industry Group, to rename the Electronics Industry Group for consistency with other proposed changes.

PROPOSED

TELECOMMUNICATIONS EQUIPMENT MFG. – all other employees

See Electronics ~~Industry~~.

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Recommendation

Establish a new cross-reference for Classification 8874(3), *Telecommunications Equipment Mfg. – hardware or software design or development*, which is part of the Electronics Industry Group, for consistency with other proposed changes.

PROPOSED

TELECOMMUNICATIONS EQUIPMENT MFG. – hardware or software design or development

See Electronics.

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Amend Section VIII, *Abbreviated Classifications – Numeric Listing*, for consistency with other proposed changes.

PROPOSED

Section VIII – Abbreviated Classifications – Numeric Listing

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- 3681(1) Instrument Mfg–electronic–all other employees
- 3681(2) Computer/Computer Peripheral Equip Mfg–all other employees
- 3681(3) Telecommunications Equip Mfg–all other employees
- 3681(4) Audio/Video ~~Electronic~~ Products Mfg–all other employees
- 4112 Integrated Circuit Mfg–all other employees
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- 8874(1) Instrument Mfg–electronic–design
- 8874(2) Computer Mfg–design
- 8874(3) Telecommunications Equip Mfg–design
- 8874(4) Audio/Video Products Mfg–design
- 8874(5) Integrated Circuit Mfg–design
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Amend Appendix IV, *Classifications Including Clerical Office Employees, Clerical Telecommuter Employees or Outside Salespersons*, for consistency with other proposed changes.

PROPOSED

Appendix IV

Classifications Including Clerical Office Employees, Clerical Telecommuter Employees or Outside Salespersons

See Section III, *General Classification Procedures*, Rule 4, *Standard Exceptions*, Subrule c, *Standard Exception Classification Procedures*.

Code	Name	Including Clerical Office Employees / Clerical Telecommuter Employees	Including Outside Salespersons
•			
•			
•			
<u>8874(1)</u>	<u>Instrument Mfg–electronic–design</u>	<u>X</u>	<u>X</u>
<u>8874(2)</u>	<u>Computer Mfg–design</u>	<u>X</u>	<u>X</u>
<u>8874(3)</u>	<u>Telecommunications Equip Mfg–design</u>	<u>X</u>	<u>X</u>
<u>8874(4)</u>	<u>Audio/Video Products Mfg–design</u>	<u>X</u>	<u>X</u>
<u>8874(5)</u>	<u>Integrated Circuit Mfg–design</u>	<u>X</u>	<u>X</u>
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