

CPSC Staff's Statement¹ on EurekaFacts, LLC Report
"Table Saw Blade Guard Survey"
May 2016

On October 11, 2011, the Commission published an advance notice of proposed rulemaking (ANPR) for table saws. In the ANPR, the Commission expressed concern that the requirements in the voluntary standard for table saws, UL 987, which include a new modular blade guard system, may not adequately address the operator blade contact injuries associated with table saw use. Although the modular blade guard design is a significant improvement over the traditional blade guard design, the effectiveness of any blade guard system depends upon the operator's willingness to use it.

To gather information on consumer use of the modular blade guard, CPSC staff contracted EurekaFacts, LLC (EurekaFacts), to conduct a survey of consumers who own table saws with a modular blade guard system. This report titled, "Table Saw Blade Guard Survey," presents the findings of research conducted by EurekaFacts, under Contract CPSC-D-15-0006, Task 1. EurekaFacts completed 200 surveys of respondents who owned a table saw manufactured after 2009, or later, that included a modular blade guard. The survey was based on a convenience sample of participants recruited by various advertisement strategies; therefore, no results from the survey will be generalized to the population. The survey instrument was designed to identify the full range of potential reasons that may impact how a consumer uses the blade guard.

This report contains seven main sections: Introduction, Study Design Methodology, Results, Conclusions, Discussion of Results, Appendix A: Survey instrument, and Appendix B: Additional Results.

Among the many findings of the study results show that:

- A majority of respondents (80%) reported that there are circumstances that require the blade guard to be removed.
- Two-fifths of respondents (42%) reported removing the blade guard either "never" (16%) or "rarely" (26%); and more than one-quarter of respondents (28%) reported removing the blade guard "sometimes." Less than one-third of respondents (31%) reported removing the blade guard either "often" (17%) or "always" (14%).
- Respondents with more experience working with table saws removed the blade guard more often than respondents with less experience.

¹ This statement was prepared by the CPSC staff, and the attached report was produced by EurekaFacts for CPSC staff. The statement and report have not been reviewed or approved by, and do not necessarily represent the views of, the Commission.



Table Saw Blade Guard Survey

MODULAR GUARD SYSTEM USAGE AND PREFERENCES

Final Report
May 4, 2016

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Submitted to:
Consumer Product Safety Commission

Submitted by:
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Table of Contents

1.	Introduction	1
2.	Study Design Methodology	2
2.1.	Sample	2
2.2.	Recruitment	3
2.3.	Data collection	4
2.4.	Data Analysis	4
3.	Results	6
3.1.	Type of Table Saw Used	6
3.2.	Table Saw Usage	9
3.3.	Blade Guard Usage	13
3.4.	Reasons for Removing Blade Guard	19
3.5.	Through versus Non-Through Cut	23
3.6.	Factors Affecting Decision to Remove Blade Guard	26
3.7.	Table Saw Experience	38
3.8.	Safety Attitudes	42
4.	Conclusions	44
5.	Discussion of Results	47
6.	Appendix A. Modular Blade Guard Use Survey	49
7.	Appendix B. Additional Results	59

1. Introduction

Consumer Product Safety Commission (CPSC) research has shown that table and bench saw injuries account for 78% of all types of stationary saw injuries and amount to \$2.36 billion per year in costs for medical treatment.² Various measures have been developed to address this important problem.

Occupational Safety and Health Administration (OSHA) has developed and introduced workplace regulations that require table saws to have safety guards and controls, such as blade guards, spreaders, and anti-kickback devices. In addition, in 2007 a new modular blade guard was designed and introduced to the market that made an attempt to minimize the hindrance and obstruction of cutting operation by the blade guards.

Despite these efforts, CPSC has expressed concerns that regulations on newly available safety systems may not adequately address the full range of causes of table saw injuries to consumers, as the effectiveness of any table saw guard system depends mostly on the consumer's willingness to use it. A survey instrument was designed in response to the need to identify the full range of potential reasons that may impact the consumer's adoption of safety measures and prevent consumers from using blade guards, as well as determine the specific blade guard design features and working/usage practices and conditions that may lead to removal of blade guards.

The objectives of this study were to:

- Understand whether the modular blade guard was installed on the table saw;
- Understand to what extent the modular blade guard was used, if it was used at all;
- Gain insight into whether the modular blade guard was removed for any reason and if/when it was returned to use;
- Understand whether the modular blade guard was modified in any way; and
- Identify the reasons behind the use or non-use of the modular blade guard.

² Consumer Product Safety Commission, (2011). Table Saw Blade Contact Injuries. Advance Notice of Proposed Rulemaking. Request for Comments and Information (CPSC Docket No. CPSC-2011). Retrieved from: <http://www.cpsc.gov/PageFiles/90189/tablesaw.pdf> on September 11, 2015.

2. Study Design Methodology

2.1. Sample

A non-probability convenience sample of 200 table saw users was selected through recruitment efforts, which began on March 9, 2015 and continued until 200 surveys were completed on July 14, 2015. Of the 238 individuals who were recruited, 200 completed the survey or were eligible to participate. This yields a response rate of 84% when we account for the unreachable.

Eligible participants included respondents who were 18 years or older who owned a table saw manufactured in 2009 or later that included a modular blade guard. The majority of table saws sold in the United States since 2009 meet the UL 987 seventh edition requirements of the modular blade guard. Thus, the population of interest can be defined as owners of table saws that were manufactured in 2009 or later, which ensures that these are owners of table saws that were originally sold with modular blade guards. The survey was focused on the owners of the four types of table saws, defined as follows:

- A benchtop portable bench saw - a lightweight and compact saw with an aluminum tabletop that is easily carried around. This saw is typically set on a bench-top or other raised surface. Some models may include removable stands or foldable legs.
- A contractor saw - a medium-duty, semi-portable machine that ranges from 200 – 350 pounds. These saws usually feature a cast iron table top and have an open, attached stand or base that reaches to the floor.
- A stationary saw also called a cabinet saw is a heavy-duty saw that sits on the floor, has a large top and has a closed cabinet stand that reaches to the floor. It is also sometimes referred to as an industrial table saw.
- A hybrid saw - a heavy-duty saw that sits on the floor. It is essentially a combination of a contractor saw and a stationary saw. This saw looks like the stationary saw, but performs and adjusts more like a contractor saw.

During the screening process, demographic information, including questions on gender and age, was obtained. Of the 200 respondents, the gender information is available for 191 respondents (**Table 1**). Most of the respondents were male (88%), while less than a tenth (8%) of the respondents were female. A few respondents (5%) did not report their gender.

Table 1. Respondents' Gender

Gender	Count	Column N%
Male	176	88%
Female	15	8%
Missing	9	5%
Total	200	100%

****Total percentages may not add up to 100% due to rounding.

Age is also not available for all the respondents (**Table 2**). Overall, average age of table saw users who responded to the survey was 47 years old. Over half of the respondents (67%) were between the ages of 18 and 54 years old. The age group with the highest number of respondents was 35 – 44 years old, with roughly a quarter of respondents (25%) falling into this group.

Table 2. Respondents' Age

Age	Count	Column N%
18 – 34 years	43	22%
35 -44 years	49	25%
45 – 54 years	40	20%
55 – 64 years	35	18%
65 years or older	27	14%
Missing	6	3%
Total	200	100%

****Total percentages may not add up to 100% due to rounding.

2.2. Recruitment

Participants were recruited with the assistance of Westat between March 9 and July 14, 2015. Recruitment efforts were broad in an attempt to get a variety of owners of table saws that came with a modular blade guard. Four main strategies used to recruit table saw users included: a) advertising in woodworking websites and publications, b) E-mail blasts to targeted panels, c) advertising in online communities such as Craigslist, and d) advertising in “Woodworkers Club” stores or store flyers and newsletters. “Woodworker Clubs” are stores that have machines and classes for hobbyists.

Interested participants were screened through a detailed survey to ensure that survey participants meet criteria of the group of interest. The screening criteria included: 1) participant age of 18 and older; 2) date of table saw purchase; 3) type of the table saw; 4) inclusion of modular blade guard system on the owned table saw.

Individuals who reported being less than 18 years old were disqualified and made ineligible to participate in the survey. Only participants who own a table saw that was manufactured in 2009 or later was included in the survey. The survey focused on the owners of the four types of table saws: a benchtop portable bench, a contractor saw, a stationary saw, or a hybrid table saw. Respondents who indicated they owned any type of saw other than these types of table saws were disqualified from participating in the study. Table saws have the option of coming with a modular blade guard, a traditional blade guard, or no blade guard. Respondents, who reported purchasing their table saw with either a traditional blade guard or no blade guard were ineligible and disqualified from participating in the survey.

2.3. Data collection

This study employed a non-experimental cross-sectional design in which data was collected via survey telephone interviews. Data for this study was collected with the survey instrument “Modular Blade Guard Use” designed and tested for the purpose of this study (Appendix A). The survey instrument was pretested utilizing the cognitive interview method to ensure that any questions that were misunderstood by respondents or that were difficult to answer would be improved prior to the survey fielding, and thus increase the overall quality of survey data and the accuracy of the study results. In evaluating a question’s performance, the cognitive testing was designed to examine the question response process in terms of the respondent’s comprehension, information retrieval, judgment as to providing requested information, and perceived degree of ease or difficulty experienced in formulating accurate/correct responses to each question posed. Results from pretesting of the survey instrument were used to revise the instrument.

The survey instrument was programmed on Vovici software and was administered via phone interview using a Computer Assisted Telephone Interview (CATI) format. When placing calls, the interviewers closely followed Institutional Review Board (IRB) and Office of Management and Budget (OMB) specified protocols. This included a Verbal Consent script that provided respondents with a clear description of the research, confidentiality associated with their participation and response, and any potential risks that may be associated with their participation.

The average length of the survey interview was 25 minutes. The survey instrument contains questions about the type of the table saw, the type of blade guard that came with the table saw, the extent to which the modular blade guard was used, whether the guard system was modified in any way, whether it was removed for any reason and if/when it was returned to use. Finally, the survey instrument includes questions on reasons and conditions for non-use of the modular safety guard, as well as participants’ experience working with the table saw. Participants who qualified and completed the full survey received a \$50 incentive.

2.4. Data Analysis

Data analysis for the Modular Blade Guard Use Survey occurred in two phases. The first phase of data analysis was performed to ensure quality of the data collected from the Modular Guard Use Survey. This process occurred at two points in the survey process; once after the completion of the first set of interviews (n=50), and again at the end of the data collection stages (n=200). The second phase of data analysis included statistical analysis of the survey data, and this occurred after the close of the interviews (n=200). The statistical analysis techniques used to analyze survey data included descriptive statistics and correlative statistics to better understand the respondents’ blade guard usage.

Data Cleaning and Editing

Data review and cleaning was performed to ensure quality of the data collected from the Modular Blade Guard Use Survey. This stage included the use of cross tabulations and frequencies to review the overall quality of the data. Five aspects of the data were reviewed: response consistency, missing responses, skip logic, coding of “other” responses, and removal of “invalid” responses. Little to no issues arose during this stage of the analysis. The introductory part of the questionnaire included six screening questions, which matched the recruitment screener, and were included to ensure that the participants met study population criteria. Cross tabulations were run on the screening questions, to ensure consistency between responses.

In addition, cross tabulations were run on questions with skip instructions to assess if the skip logic was set up and executed properly. The questionnaire had eight questions with skip instructions. The analysis showed that all skip logic and branching questions function correctly and the skip pattern led respondents through relevant paths. Questions with “other” responses were reviewed and answers that fit into existing response options were recoded. The questionnaire had twelve questions with an “other” response option. Three

respondents were removed from the final data set due to their ineligibility. As a measure to prevent any potential response-order effects, we rotated the sub-items presenting reasons for not using blade guard in Question 22, after the first quality review.

Quantitative Data Analysis

After cleaning the data collected with the Modular Blade Guard Use Survey, responses were analyzed through the use of SPSS 10. Descriptive and bivariate statistics were used. A series of frequencies were run to understand the general make-up of responses. Based off the frequency distributions, interval based data was grouped together for analytic purposes. In addition, averages were obtained from interval based data. Bivariate statistics were used to assess the relationship between the variables. A series of chi-square at the alpha level of 0.05 were applied to nine variables to understand their relationship with behavior regarding the use or non-use of the modular blade guard. These variables included: respondents age, type of table saw owned, condition of table saw, installation status of blade guard, condition of blade guard, respondents' level of expertise, prior use of traditional blade guard, respondents' perception of danger, and respondents' perception of blade guard's ability to prevent hazards.

Open-Ended Response Analysis

As part of the survey, respondents were asked ten open-ended questions which required additional qualitative analysis. Responses were analyzed using Microsoft Excel and occurred in four phases: reviewing, coding, establishing themes, and recoding. First, responses were reviewed to understand the general scope of the responses and to understand what respondents were reporting. The preliminary review of the responses also assisted in the second stage of analysis: coding. Open-ended responses were coded, which assisted in identifying salient categories throughout the report. Once coding was complete, themes were identified. Identifying prominent themes assisted in constructing a narrative to report on responses. The fourth stage consisted of recoding and collapsing categories as a method of cleaning and reorganizing categories.

Reporting of open-ended analysis findings differed depending on the number of responses. Open-ended questions that included a limited number of responses and a single item in their response were reported using the total number of responses as the denominator. This method mainly applied to responses to questions with a "specify other" option. On the other hand, if open-ended questions included numerous responses, touching on several items, the responses were reported as percentages. This method tends to apply to open-ended questions seeking explanations to a behavior.

3. Results

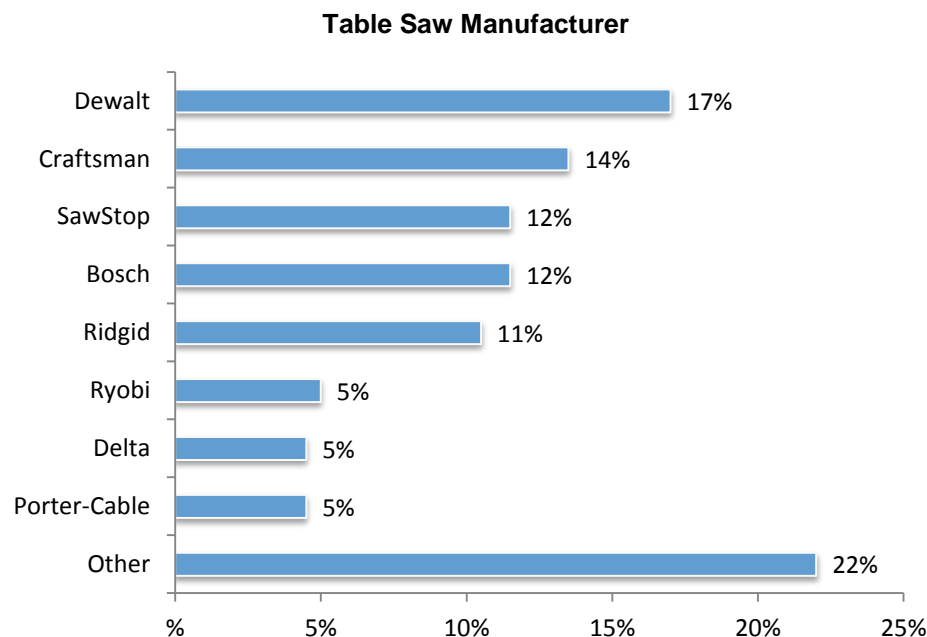
The survey analysis that follows provides information on the type of the table saw survey participants own and examination of table saw and modular guard usage. The analysis also investigates the circumstances and reasons for modular guard non-usage, as well as any factors affecting modular guard removal. Finally, the results related to the participants' safety attitudes and experience working with a table saw is presented.

3.1. Type of Table Saw Used

To understand the type of table saws respondents were reporting on, the Modular Blade Guard Use Survey asked respondents several questions pertaining to their table saws. Respondents were able to provide information about the manufacturer, type, year purchased, condition, and price of their table saw.

Regarding table saw manufacturer (**Figure 1**), respondents provided various manufacturer names; however, the most often cited manufacturer was DeWalt (17%). The second most cited manufacturer was Craftsman (14%), followed by SawStop (12%) and Bosch (12%). Other manufacturer names provided included Skill, Jet, and Kobalt. All of the respondents were able to report the name of the table saw manufacturer.

Figure 1. Reported Table Saw Manufacturer

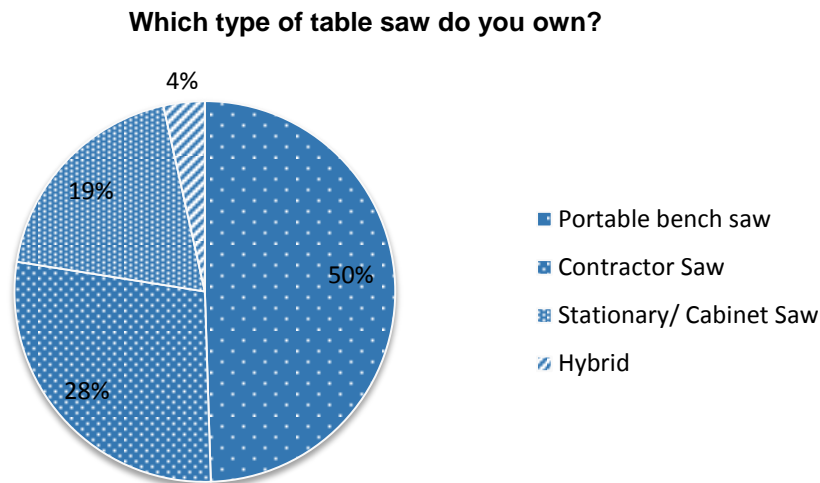


*n=200

**Total percentages may not add up to 100% due to rounding.

As indicated by Figure 2, the most common type of table saw owned by respondents was the portable bench saw. Half of the respondents (50%) reported that they owned a portable bench saw. The other half of the respondents reported owning a contractor saw (28%), stationary/ cabinet saw (19%), or a hybrid table saw (4%).

Figure 2. Respondents' Type of Table Saw

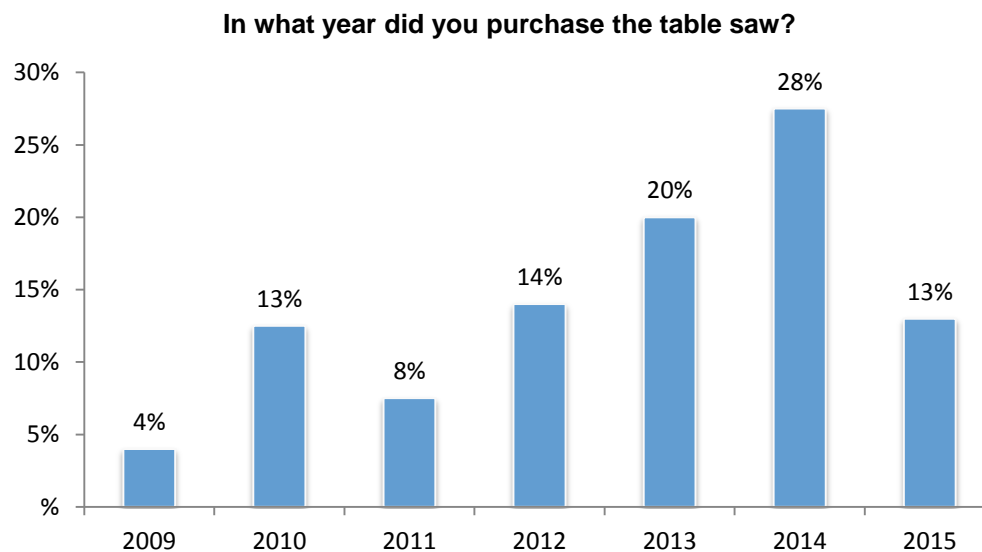


*n=200

**Total percentages may not add up to 100% due to rounding.

Over half of the respondents (61%) purchased their table saw after 2012 (**Figure 3**). While 13% of respondents reported purchasing their table saw in 2015, just over a quarter of respondents (28%) indicated that they purchased their table saw in 2014. One fifth of respondents (20%) stated they purchased their table saw in 2013.

Figure 3. Year Table Saw Purchased

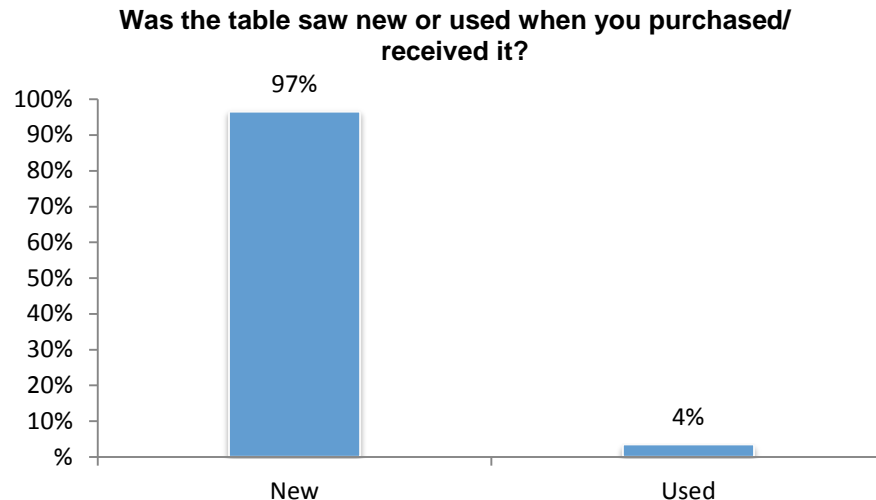


*The percentages may not equal 100 because two response options were removed due to low responses; "Don't know/ Refused" (1%) and "I did not purchase it/it was a gift" (1%).

**n=197

Respondents were asked about the condition of their table saw upon purchasing or receiving it (**Figure 4**). Most of the respondents (97%) noted that their table saw was “New” when they purchased or received it.

Figure 4. Table Saw Condition.

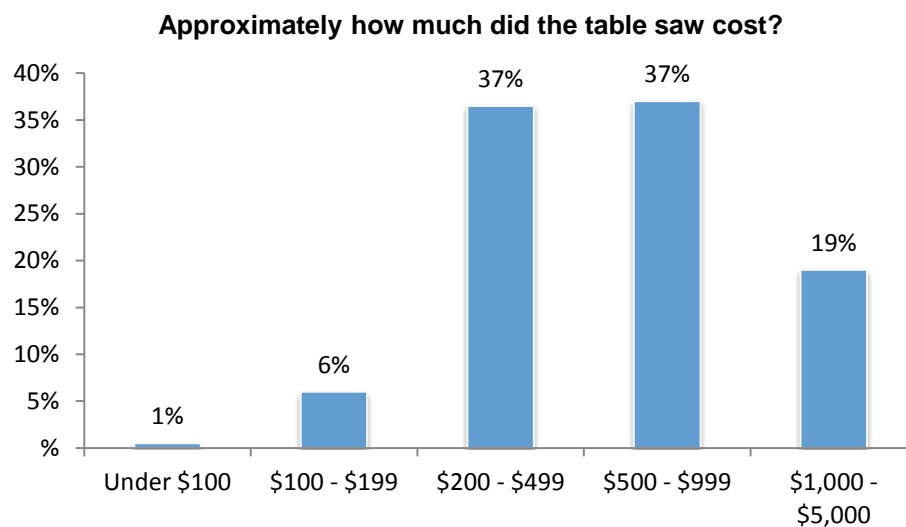


*n=200

**Total percentages do not add up to 100% due to rounding.

Nearly three quarters of respondents (74%) paid between \$200 and \$999 for their table saw (**Figure 5**). Over a third of respondents (37%) reported paying between \$500 and \$999 for their table saw. A similar share of respondents (37%) reported paying between \$200 and \$499 for their table saw. Almost one fifth of respondents (19%) reported paying from \$1,000 to \$5,000. None of the respondents reported paying over \$5000 for their table saw.

Figure 5. Table Saw Cost.



*The response option “Don’t know/ Refused” (1%) was removed due to low number of responses.

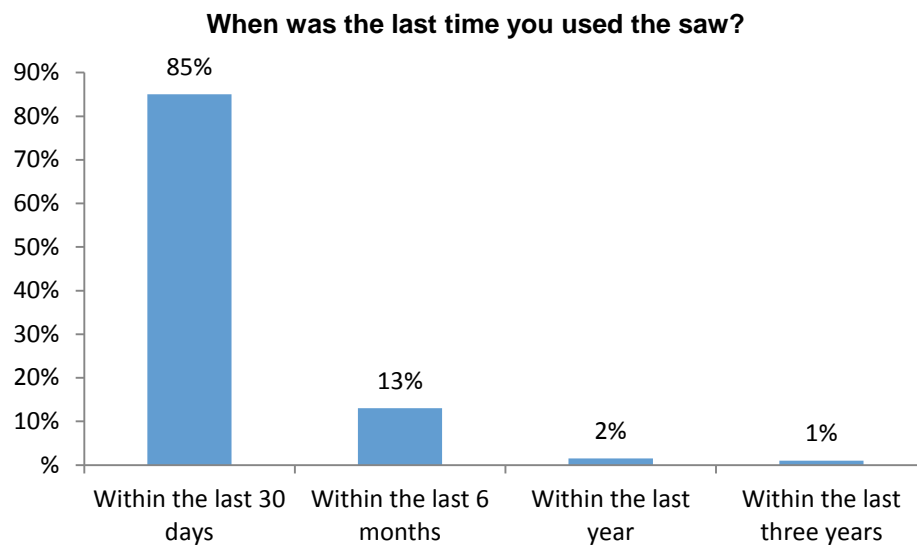
**n=200

3.2. Table Saw Usage

The respondents' table saw usage was measured by asking three questions pertaining to the frequency at which they use their table saw. First, respondents were asked about the last time they used their table saw. Then they were asked about the frequency at which they use their table saw. Finally, they were asked about the duration at which they spend during a typical session when using the table saw.

Respondents were asked when the last time they used their table saw was (**Figure 6**). A majority of respondents (85%) reported using their table saw "within the last 30 days." The remainder of the respondents (16%), reported using their table saw "within the last 6 months" (13%), "within the last year" (2%), or "within the last three years" (1%).

Figure 6. Most Recent Table Saw Usage.

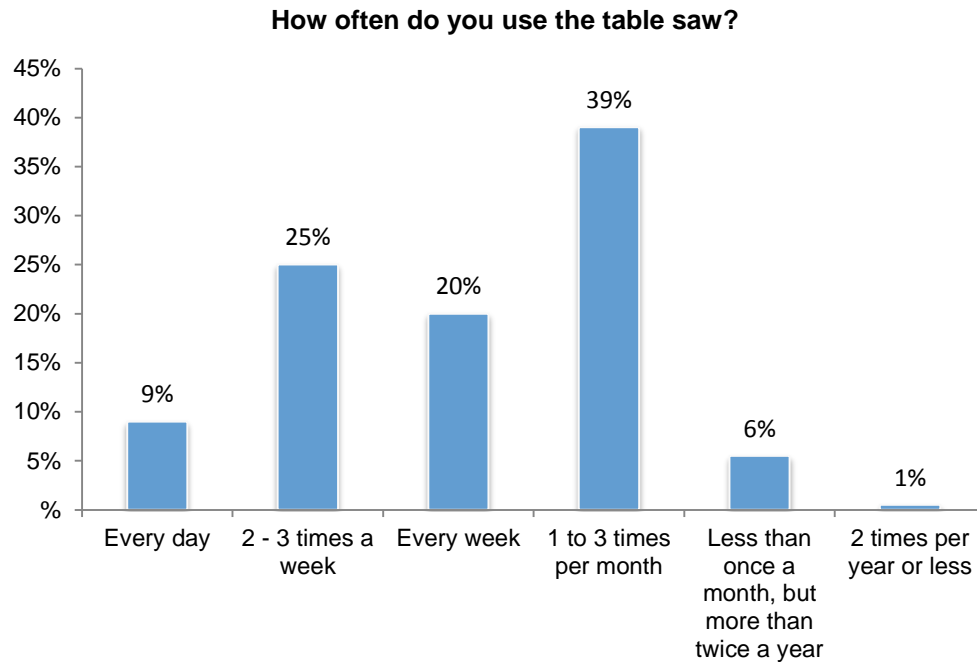


*n=200

**Total percentages may not add up to 100% due to rounding.

When asked about how often respondents use their table saw, nearly two-in-five (39%) reported they use the table saw “1 to 3 times a week”, a quarter of respondents (25%) used their table saw “2 – 3 times a week”, and one in five (20%) used the table saw “every week” (**Figure 7**).

Figure 7. Frequency of Table Saw Usage

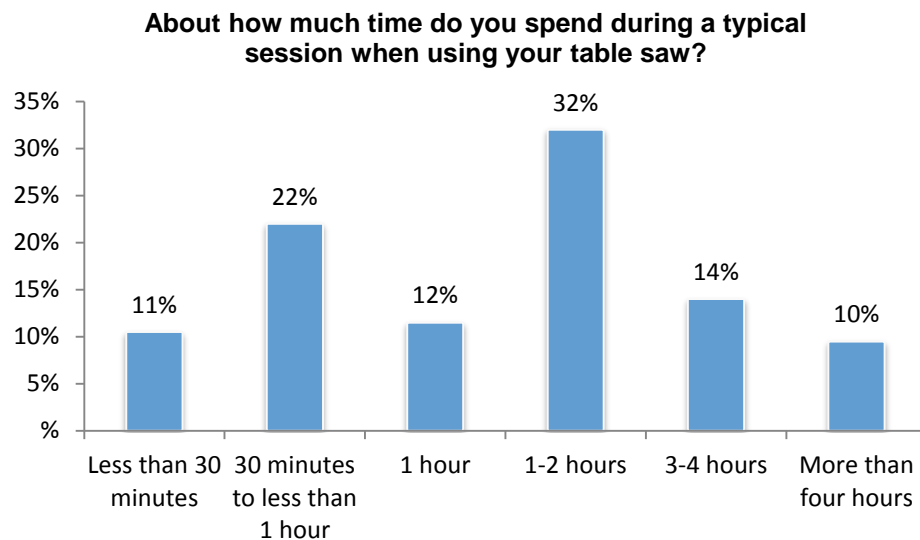


*The response option “Other” (1%) was removed due to low responses.

**n=200

Over three quarters of respondents (76%) reported using the table saw up to 2 hours during a typical session (**Figure 8**). Nearly a third of respondents (32%), reported using the table saw, on average, “1-2 hours” per session, while 44% of respondents said they use the table saw “1 hour” (12%), “30 minutes to less than 1 hour” (22%), or “less than 30 minutes” (11%) during a typical session. One respondent said the amount of time they spend using the table saw “depends on the project at hand.”

Figure 8. Distribution of Table Saw Duration



*The response option “Other” (1%) was removed due to low responses.

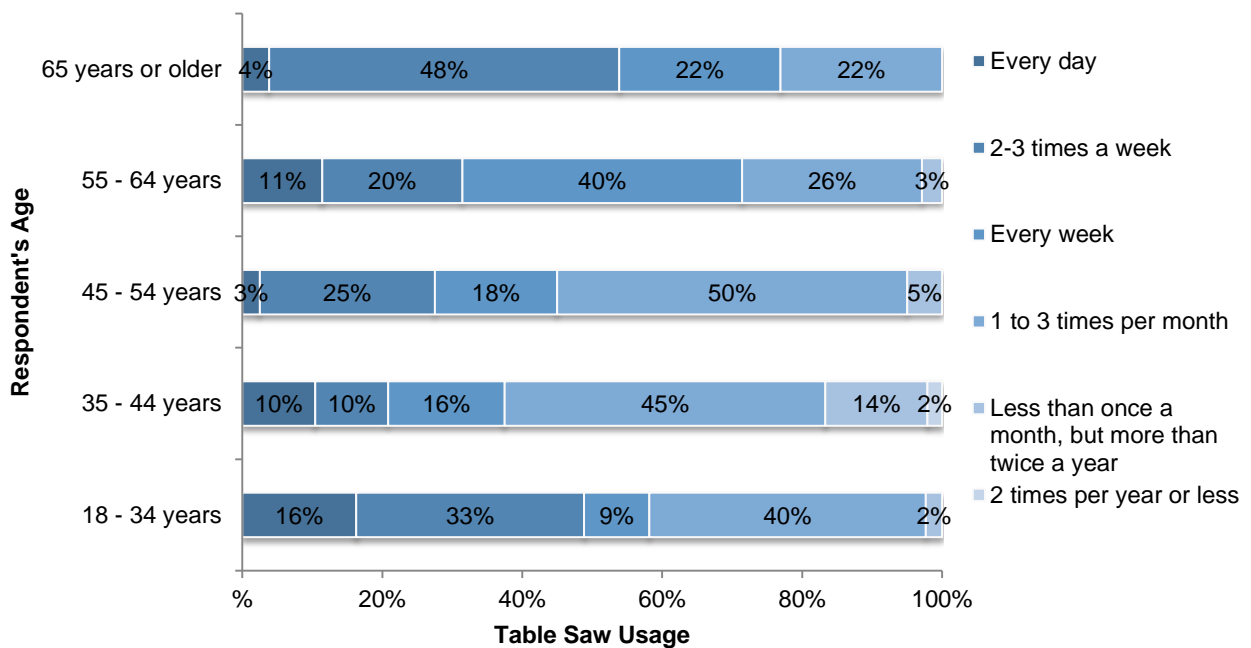
**n=200

*** Total percentages may not add up to 100% due to rounding.

Factors Affecting Table Saw Usage

The survey results suggest that usage of a table saw may be dependent upon the respondents age (**Figure 9**). Overall, the oldest (65 and older) and the youngest (18-24 years) age groups of respondents tended to use the table saw more frequently, with 52% and 49% of respondents of these groups respectively reported using the tables from every day to 2-3 times a week. The age group from 35 to 44 years old tended to use table saw least frequently compared to the rest of the age groups, with only one-in-fifth (20%) reporting using the table from every day to 2-3 time a week. Although the middle age group (45-54 years old) was least likely to use the table every day, a quarter (25%) of this group reported using the table saw from “2 to 3 times a week.” Younger adults (35-44 and 45-54 age brackets), were more likely to use the table saw “1 to 3 times per month” (45% and 50%, respectively).

Figure 9. Frequency of Table Saw Use by Respondent's Age



*Significant at 0.05 level.

3.3. Blade Guard Usage

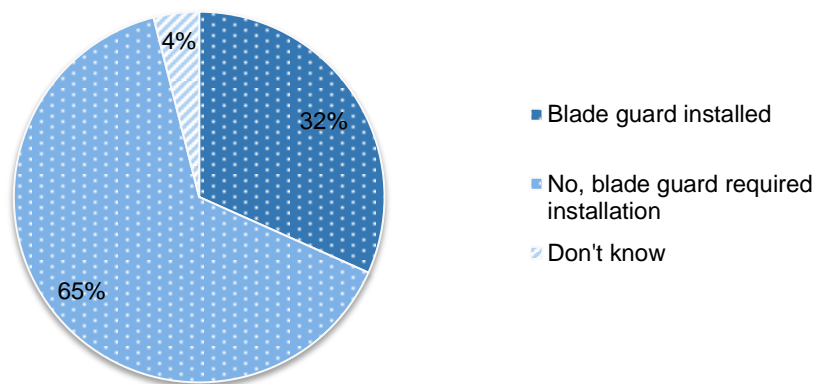
The Table Saw Guard Survey asked respondents about their modular blade guard. First, respondents were asked about the installation status of their blade guard. This included questions pertaining to whether or not the blade guard was installed prior to purchasing or receiving the table saw, and, if the blade guard required installation, respondents were asked about the time at which they installed the blade guard. In addition, respondents were asked whether or not the blade guard was removed for any reason, and if so, when it was returned to use.

Blade Guard Installation

Almost two-thirds of respondents (65%) reported that their table saw did not come with the blade guard installed, and that it required installation (**Figure 10**). Almost a third of respondents (32%) noted that their table saw came with the blade guard installed.

Figure 10. Blade Guard Installation Status

When you bought or received your table saw did it come with the blade guard installed?



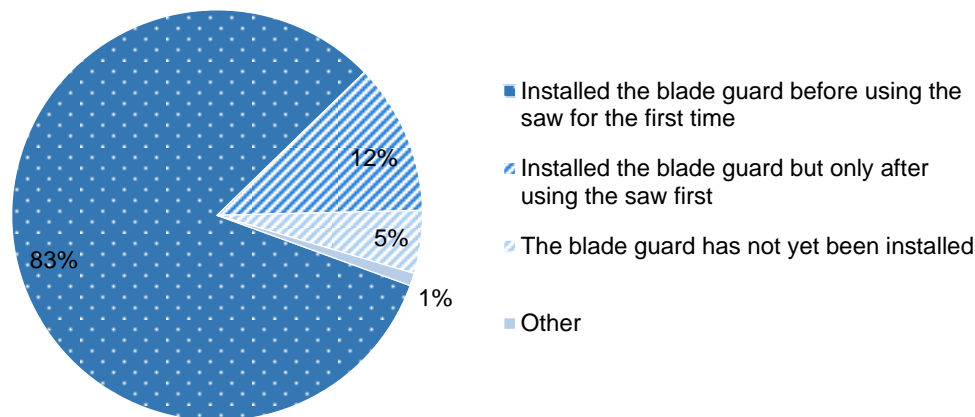
*n=200

**Total percentages may not add up to 100% due to rounding.

Those respondents who reported that their table saw did not come with the blade guard installed, were asked when they installed their blade guard (**Figure 11**). A majority of respondents (83%) reported installing their blade guard prior to using it the first time. Over one-tenth of respondents (12%) reported installing their blade guard, “only after using it first.” Roughly 5% of respondents reported that the blade guard “has not yet been installed.”

Figure 11. Time at Which Installed Blade Guard

After you purchased or received your table saw, when did you install the blade guard?



*n=129

**Total percentages may not add up to 100% due to rounding.

Respondents who indicated that they either installed the blade guard only after using the table saw first (12%), or never installed it (5%), were asked about the reason they decided to operate their table saw without initially installing the blade guard. Over half of the respondents who indicated that they used the table saw without initially installing the blade guard (11 out of 20) said they wanted to see how the table saw worked. Some of the explanations included:

- “to see how the saw worked;”
- “just wanted to see how the blade handled;”
- “wanted to try riving knife first.”

A quarter of the respondents (5 out of 20) who indicated that they used the table saw without initially installing the blade guard because of type of cut they needed to complete. Some of the reasons included:

- “needed to make dado cuts”
- “it interfered with small parts being cut”
- “wants to be able to see exactly when cutting wood”

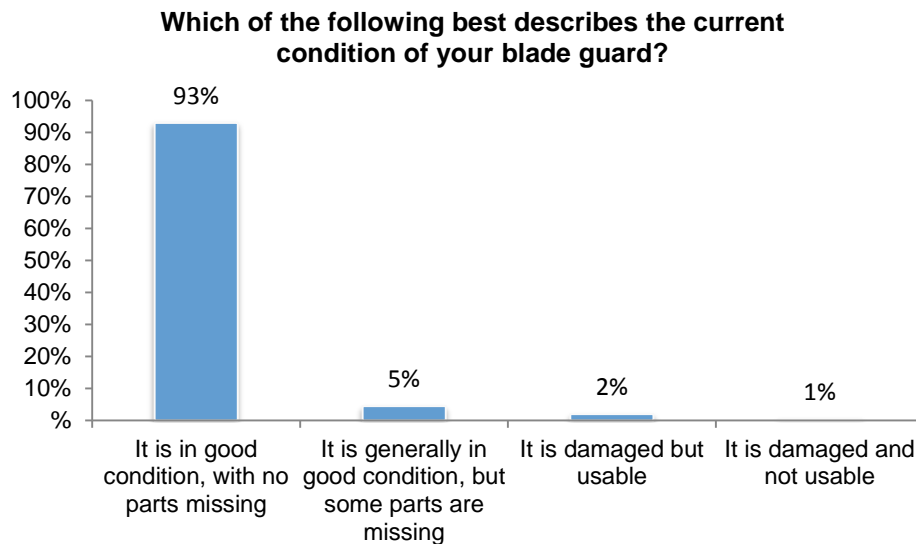
The remaining respondents (4 out of 20) provided various reasons for not installing the blade guard prior to use, such as:

- “the blade guard is inconvenient and in the way”
- “Just for safety’s sake”
- “I didn’t realize that the blade guard was missing until seconds after”

Blade Guard Condition

When asked about the current condition of their blade guard (**Figure 12**), a majority of respondents (93%) noted, "It is in good condition, with no parts missing." Only one percent of respondents (1%) reported that their blade guard was "damaged and not usable."

Figure 12. Blade Guard Condition



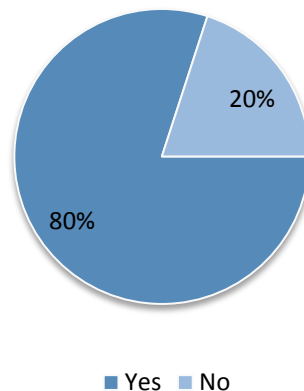
*n=200

Blade Guard Removal

A majority of respondents (80%) reported that there are circumstances that require the blade guard to be removed (**Figure 13**). Only one-fifth of the respondents (20%) stated that there are not aware of any circumstances that require the blade guard to be removed.

Figure 13. Reported Circumstances that Require Blade Guard Removal

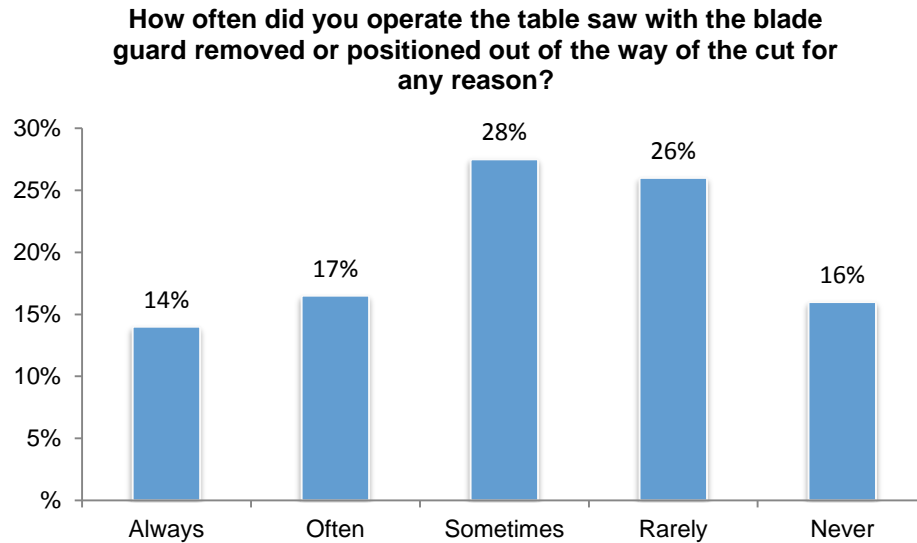
Do you know of any circumstances that require the blade guard to be removed?



*n=200

When asked about the frequency at which respondents operate the table saw without the blade guard in place, two-fifth of respondents (42%) reported removing the blade guard either “never” (16%) or “rarely” (26%), over one-quarter of respondents (28%) reported removing the blade guard “sometimes” (**Figure 14**). Less than a third of respondents (31%) reported removing the blade guard either “often” (17%) or “always” (14%).

Figure 14. Frequency of Operating Table Saw Without Blade Guard



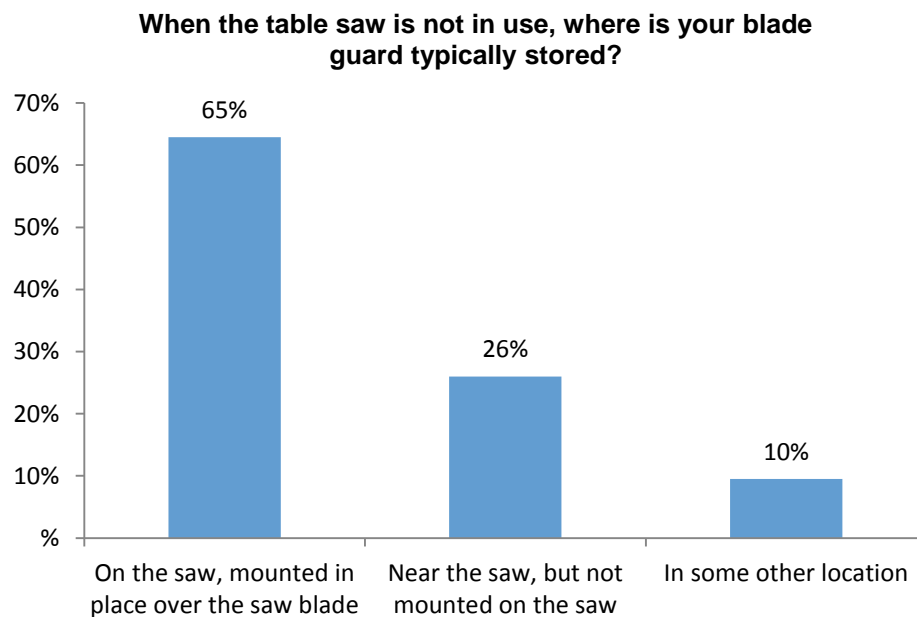
*n=200

**Total percentages may not add up to 100% due to rounding.

Blade Guard Storage

Over half of the respondents (65%) noted that when the table saw is not in use, the blade guard is typically stored “on the saw, mounted in place over the saw blade” (**Figure 15**). Over a quarter of respondents (26%) reported they store their blade guard “near the saw, but not mounted on the saw.” A one-tenth of respondents (10%) reported storing their blade guard “in some other location.”

Figure 15. Blade Guard Storage.



*n=200

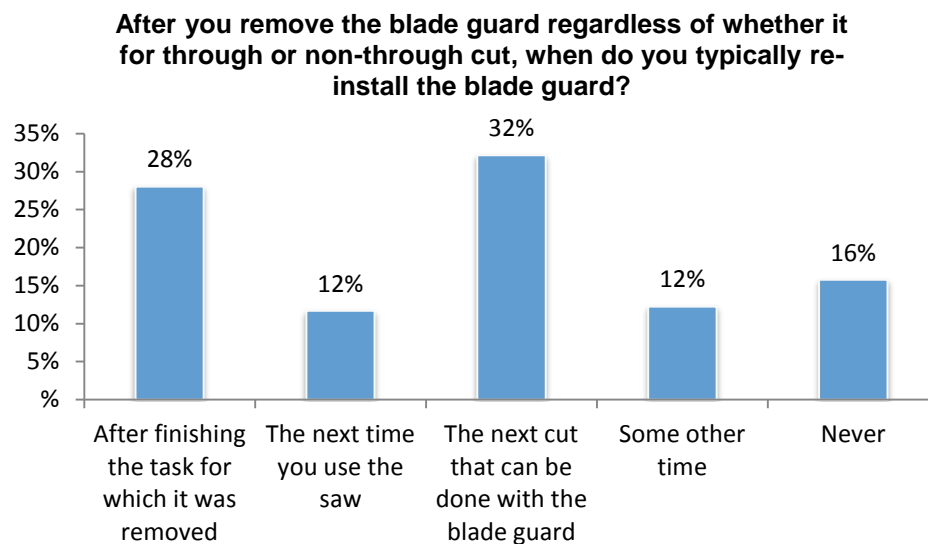
**Total percentages may not add up to 100% due to rounding.

Respondents who indicated they store their blade guard somewhere else (10%) when the table saw is not in use were asked where they store the blade guard. The most common locations respondents provided were: the cabinet, the garage, or another location. Just under a third of these respondents (6 out of 19) who reported storing their blade guard “in some other location” said they store their blade guard in a cabinet or drawer, or on a shelf. Over a quarter of the respondents (5 out of 19) who indicated that they store their blade guard “in some other location” when the table saw is not in use, said they store their blade guard somewhere in the garage. Three out of the nineteen respondents who indicated that they store their blade guard “in some other location” when the table saw is not in use, said they store their blade guard in the toolbox or bench. An equal number of respondents (3 out of 19) reported storing their blade guard in another room, when not operating their table saw. These alternative rooms included the attic, the shed, or a “different room in the house.”

Reinstalling Blade Guard

Respondents who indicated that they remove the blade guard for any reason were asked when they reinstalled the blade guard (**Figure 16**). Roughly a third of respondents (32%), reported reinstalling the blade guard “the next cut that can be done with the blade guard,” 28% percent of respondents reported reinstalling the blade guard “after finishing the task for which it was removed.”

Figure 16. Reinstalling Blade Guard.



*n=171

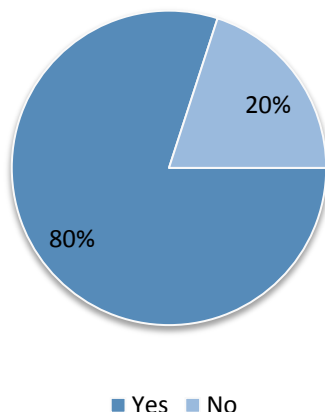
Respondents, who indicated that they typically re-install the blade guard “some other time” (12%), were asked to describe when they return the blade guard to use. The themes which emerged from the respondents’ explanation included: when they remember to install the blade guard, installation depends on the next job, issues related to visibility, difficulty, and a handful of other reasons. Nearly half of the respondents (9 out of 21) who reported re-installing the blade guard “some other time,” described reinstalling the blade guard when they “remembered to do it.” A few participants (3 out of 21) explained that the time they choose to reinstall the blade guard depended on the next project: *“It just depends on the job at hand.”* The remaining responses (6 out of 21) included explanations related to safety, precision cuts, and time, such as: *“Whenever a difficult cut is called for.”*

3.4. Reasons for Removing Blade Guard

A majority of respondents (80%) reported that there are circumstances that require the blade guard to be removed (**Figure 17**). Only one-fifth of the respondents (20%) stated they are not aware of any circumstances that require the blade guard to be removed.

Figure 17. Reported Circumstances that Require Blade Guard Removal

Do you know of any circumstances that require the blade guard to be removed?

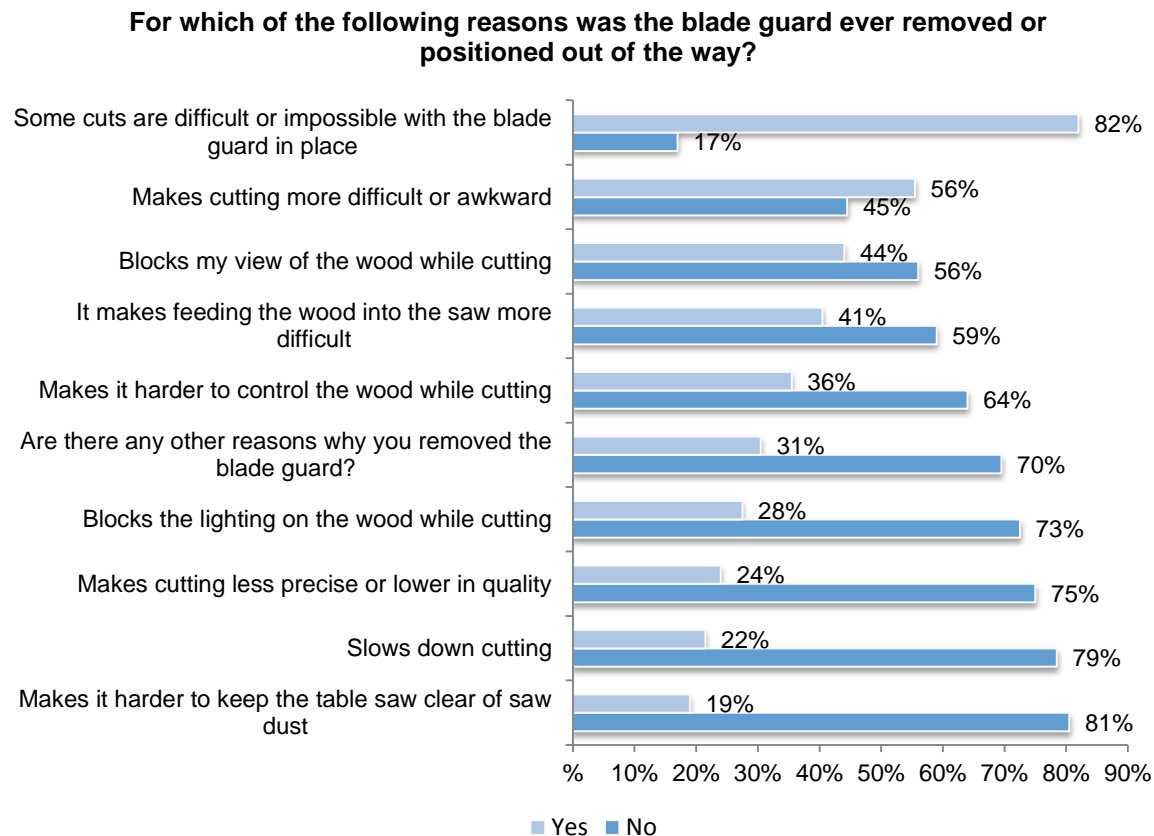


**n=200

To understand why someone might operate a table saw without using a blade guard, respondents were provided a list of reasons why they might remove or position their blade guard out of the way. Reasons why someone might remove their blade guard included: slows down cutting, makes it harder to keep the table saw clear of saw dust, makes cutting more difficult or awkward, makes cutting less precise or lower in quality, blocks my view of the wood while cutting, blocks the lighting on the wood while cutting, it makes feeding the wood into the saw more difficult, some cuts are difficult or impossible with the blade guard in place, and if there were any other reasons why the respondent might have removed the blade guard.

A majority of the respondents (82%) reported that one of the reasons they may remove or position the blade guard out of the way is because "some cuts are difficult or impossible with the blade guard in place" (**Figure 18**). The other leading reasons someone may have removed or positioned the blade guard out of the way were because it "makes cutting more difficult or awkward" (56%) and because it blocked their "view of the wood while cutting" (44%).

Figure 18. Reasons for Blade Guard Removal



*n=200

**The percentages may not equal 100 because the response category "Don't know" was removed due to low responses. Some percentages exceed 100 due to rounding.

Respondents who said they removed or positioned the blade guard out of the way because some cuts are difficult or impossible with the blade guard in place (82%), were asked in a follow up question about which type of cuts for which they have to remove the blade guard.

Respondents provided several types of cuts that would require the blade guard to be removed. The top three most commonly cited types of cut include: non-through cuts (38%), narrow/thin cuts (19%), and angled/curved cuts (17%). Of the non-through cuts, the most frequently cited type of cut was the dado cut; which accounted for three fifths (60%) of the reported non-through cuts. Additional types of cuts that were provided by respondents to explain why they might remove the blade guard included crosscuts/sleds (8%), rabbet cuts (7%), miter cuts (4%), and jig cuts (3%). A few respondents mentioned tenon joints, through cuts, and precision cuts.

Circumstances Requiring the Blade Guard to be Removed

In two open-ended questions, respondents were asked to describe the circumstances and reasons that required the blade guard to be removed.³ Responses were reviewed and coded for analysis purposes. The analysis of circumstances requiring the blade guard to be removed revealed three main themes: cut-related issues, usability issues, and other miscellaneous issues. The main reason respondents removed the blade guard was cut related. Two-third of the responses (66%) mentioned that the blade guard had to be removed because of the type of cut being performed. The top three cuts requiring respondents to remove their blade guard were dado cuts, small cuts, and curved/angled cuts. Additional cuts that required removing the blade guard included non-through cuts, sled cuts, and/or other miscellaneous cuts.

- The most commonly cited cut that required respondents to remove or position the blade guard out of the way was dado. Less than a quarter of the responses (20%) included explanations citing dado cuts as a reason respondents needed to remove the blade guard.
 - *"Using the 'dado blade' would require blade guard removal."*
 - *"When performing dado cuts..."*
- The second most commonly cited cut was small cuts. Fifteen percent (15%) of responses cited small cuts as an explanation as to why it was necessary for respondents to remove the blade guard. Reasons related to small cuts included:
 - *"Precision cuts" or "For narrow cuts"*
 - *"When you cut a 2" piece of wood or smaller"*
 - *"For 'compound' cuts or working with a smaller piece of wood"*
- The third most common cut respondents cited as a reason for removing the blade guard was curved/angled cuts. A little less than one tenth of responses (8%) included explanations citing curved/angled cuts as a reason for removing the blade guard. Several respondents reported removing their blade guard for miter cuts, rabbet cuts, or angled/ curved cuts. Reasons related to curved/angled cuts included:
 - *"When performing miter cuts"*
 - *"Tight corner molding/certain angles"*
 - *"For angled cuts or other types of cuts"*
- The remainder of responses citing types of cuts as an explanation as to why respondents removed the blade guard included sled cuts (5%), rips (3%), mortise and tenon cuts (2%), as well as several miscellaneous cuts (8%). Miscellaneous cuts include hidden cuts, joints, and vertical cuts.

A third of the responses (30%) included explanations citing issues related to usability of their table saw and/or blade guard as a reason for removals of the blade guard. The top three issues related to the usability of the table saw and/or blade guard pertained to the size of the piece being cut, cleaning/maintenance of the table saw, and issues related to visibility. Additional explanations for removing the blade guard related to the usability of the table saw and/or blade guard include control, kickback, and convenience.

- The most commonly cited issue related to usability had to do with the size of the piece being cut. About a tenth of the responses (10%) included explanations stating that the size of the piece being

³ Question 21 asked "Do you know of any circumstances that require the blade guard to be removed?" (n=160). In addition, Q22j asked "Are there any other reasons why you removed the blade guard?"(n=60). Respondents, who answered "Yes" to either question, were asked, in a follow up question, to provide the circumstances that would require the removal of the blade guard. These responses were analyzed in a cumulative format.

cut was too large and required the blade guard to be removed. Reasons related to how large the piece was, include:

- *"Some 4x4 cuts; 10-12 couldn't do with the blade guard; if blade guard was on outside of table, 'that would be awesome'"*
- *"Sawing large sheet of plywood as well as cutting PVC tubing"*
- *"When working on large pieces of lumber..."*
- In terms of usability, cleaning and/or maintaining the table saw was another prominently cited issue used by respondents (8%) when explaining the circumstances surrounding their discussion to remove the blade guard. Reasons related to maintenance and/or cleaning of the table saw included:
 - *"Debris collector gets clogged and prevents blade from working properly"*
 - *"When blades have to be changed or replaced or if stock has to be removed"*
 - *"If the piece of wood gets jammed in the saw or for maintenance purposes"*
- The third usability issue pertained to issues with visibility. This group of the responses (5%) included explanations which indicated that the blade guard either obstructed their view or made it difficult to see their cut. Some of these circumstances included:
 - *"If it blocks my view of the wood"*
 - *"When it blocks view of the material being cut"*
- Additional responses pertaining to usability issues with the blade guard included explanations related to control, kickback, and convenience. Several respondents commented on the blade guard's tendency to "get in the way," making the table saw more "difficult" to use. Others discussed issues with kickback, with one respondent stating, "Sometimes the 'kickback guard' and the blade guard don't work well together sometimes." A very small portion of respondents noted that they removed the blade guard because it was more "convenient" without it.

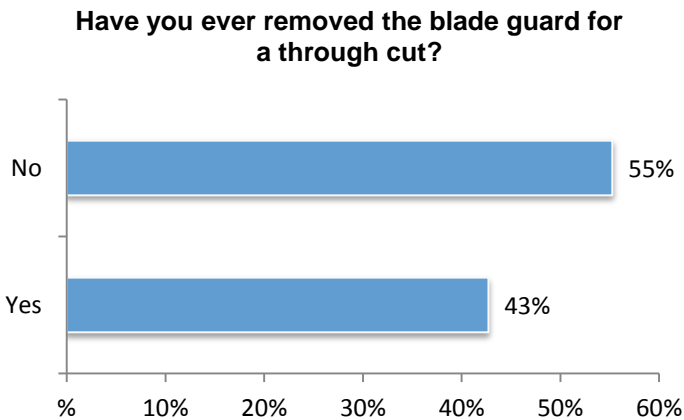
The remainder of the responses (4%) for why someone might remove the blade guard included miscellaneous comments. A few of the respondents explained they remove their blade guard for transportation and/or storage purposes. A couple of the responses indicated that someone might remove their blade guard when using an additional tool for cutting (*i.e.*, sanding wheel or riving knife).

3.5. Through versus Non-Through Cut

Through Cut

Over half of the respondents (55%) reported that they have never removed a blade guard for a through cut (**Figure 19**). Approximately two-fifths of the respondents (43%) indicated they have removed their blade guard for a through cut.

Figure 19. Blade Guard Removed for Through Cut



*The percentages do not equal 100 because the response option "Don't know/Refused" (2%) was removed due to low responses.

**n=199

Respondents, who reported having removed the blade guard for a through cut (43%), were asked to describe why they might have removed the blade guard. The main reasons cited for why someone might remove the blade guard for a through cut, were cut-related (e.g., small cuts, crosscutting/sled, specific cuts, through cuts, and curved/angled cuts). Over half of the respondents (45 out of 86) who indicated that they remove the blade guard for through cuts provided cut-related reasons/issues:

- About a quarter of respondents (21 out of 86) explained that performing small through cuts required them to remove the blade guard.
 - *"Needed to cut off smaller length than blade guard permitted"*
 - *"For ripping up thin pieces of material"*
 - *"Cutting thin piece of wood while using a gripper"*
- Almost one in ten of the respondents (12 out of 86) explained that performing sled cuts required them to remove the blade guard:
 - *"Using table saw sled"*
 - *"Mainly because I use the micro jig. The blade guard has to be removed in this scenario."*
- A little less than one in ten of the respondents (5 out of 86) who reported removing their blade guard for through cuts cited "buzz cuts," partial cuts, or miter cuts, as a type of cut which required the blade guard to be removed.
- The remaining cut-related issues prompting respondents to remove their blade guard for a through cut were related to the through cut or curved/angled cuts. Roughly, four out of eighty-seven respondents reported always removing the blade guard for through cuts. A similar amount of respondents (3 out of 86) reported removing the blade guard when performing angled cuts.

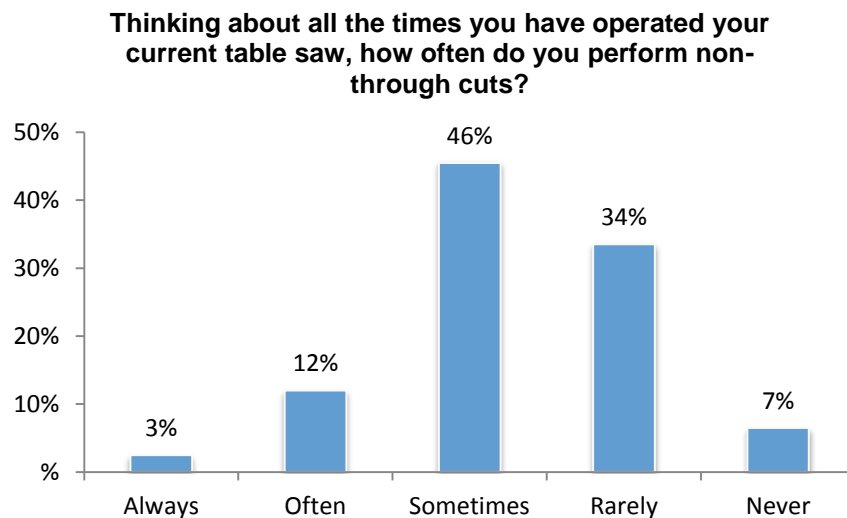
- One in six of the respondents (15 out of 86) explained that the piece they were cutting was too thick or large and required the blade guard to be removed.
 - *“The thickness of the wood meant blade guard had to be removed”*
 - *“For working on very long wood planks”*
- One in six of the respondents (14 out of 86) explained that either the blade guard obstructed their view of the wood or they had difficulty maneuvering the wood, which prompted them to remove the blade guard.

The remainder of the respondents provided several additional descriptions to explain why they might remove the blade guard for through cuts. Several respondents (6 out of 86) explained that they simply do not like using the blade guard. These respondents expressed their dissatisfaction with the blade guard, overall, as reasons for not using the blade guard. A few respondents (4 out of 86) provided explanations pertaining to the usability of the blade guard. Explanations included issues with accuracy and speed of the cut, and alignment of the blade.

Non-through Cut

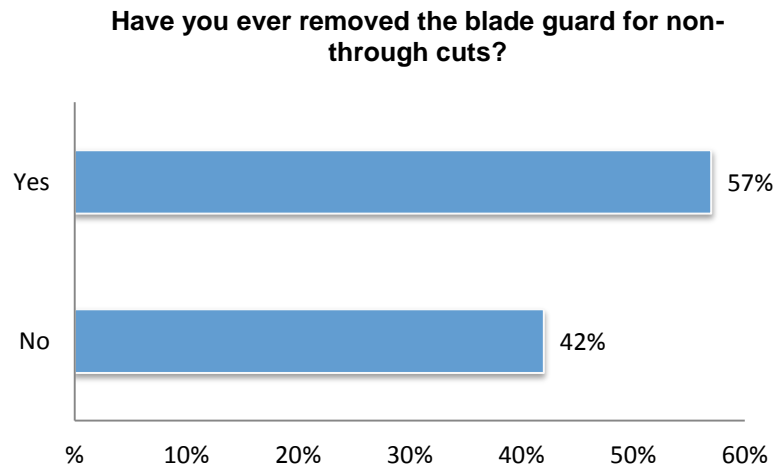
Almost a half of the respondents (46%) reported performing non-through cuts “sometimes” (**Figure 20**). Two fifths of the respondents stated they perform the cuts “rarely” (34%) or never” (7%). Only one-sixth of respondents (15%) reported performing non-through cuts “always” (3%) or “often” (12%).

Figure 20. Frequency of Non-through Cuts



**n=200

Figure 21. Blade Guard Removed for Non-through Cuts



*The percentages do not equal 100 because the response option "Don't know/Refused" (1%) was removed due to low responses.
 **n=200

Over half of the respondents (57%) indicated they have removed the blade guard for non-through cuts (**Figure 21**). Less than half of the respondents (42%) indicated that have not removed their blade guard for a non-through cut.

Respondents who reported removing the blade guard for non-through cuts (57%) were asked to describe why they have removed the blade guard. The main reasons cited for removing the blade guard for a non-through cut were related to the type of cut. A majority of the respondents (85 out of 114) who indicated that they remove the blade guard for non-through cuts explained that they had to remove the blade guard because of the type of cut being performed.

- Over half of the respondents (62 out of 114) who said they had to remove the blade guard for a type of cut described names for specific cuts. The top three most frequently cited cuts respondents used to explain why they had to remove their blade guard were dado, rabbet, and groove cuts. Additional cuts that required the blade guard to be removed were tenon, dovetail, and several other non-through cuts.
- Some respondents (15 out of 114) that reported removing their blade guard for non-through cuts explained that several non-through cuts [in general] require the blade guard to be removed.
 - *"Every time I make a non-through cut, I remove the blade guard to allow for more downward pressure"*
 - *"Don't know of any guard that would work with a non-through cut, except maybe over arm"*
- Almost one in ten of the respondents (10 out of 114) who reported removing the blade guard for non-through cuts said it was necessary because the size of the item being cut was too thick or too large.
 - *"For thicker materials or other materials that would require the blade guard to be removed. A riving knife would be used in this instance."*
 - *"The wood was too thick and wouldn't pass through the guard"*
- Almost one in ten of the respondents (9 out of 114) reported issues with seeing or controlling the wood when explaining why they might remove the blade guard during non-through cuts.
 - *"When visibility is an issue"*
 - *"To control the piece of wood better"*

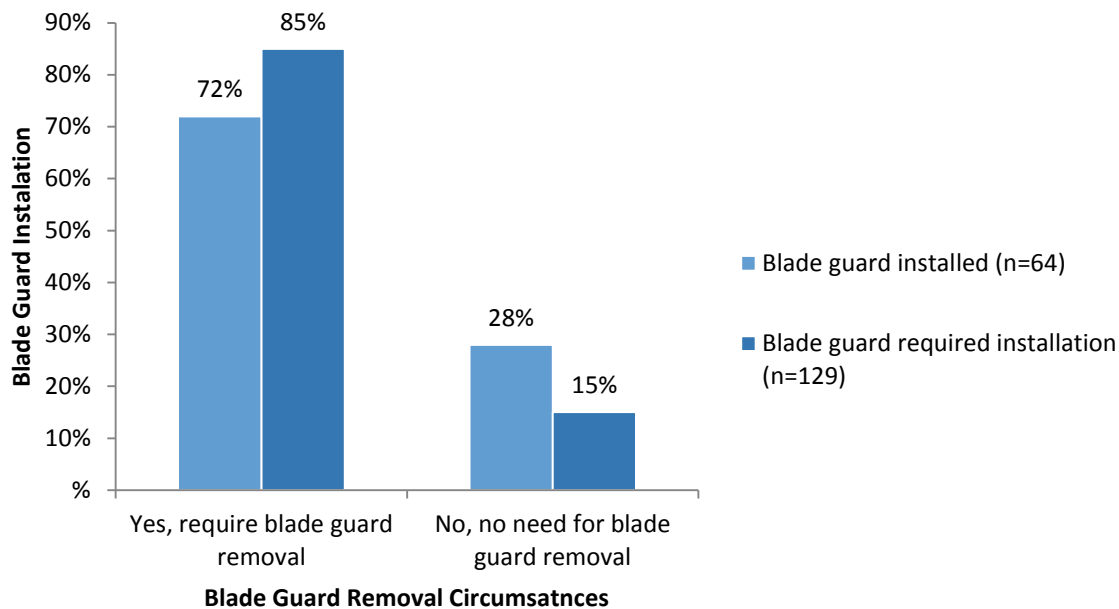
3.6. Factors Affecting Decision to Remove Blade Guard

The following section explores the factors that may affect removal of blade guard. The analysis investigated the effect of the following factors: blade guard installation status when the table saw was purchased or received and users experience working with table saw. This section discusses only those factors that were found to have statistically significant effect.

Blade Guard Installation

The respondents' reporting on knowing of circumstances that require the blade guard to be removed seem to be related to whether or not the blade guard came installed with the table saw upon purchasing or receiving it (**Figure 22**). Respondents who purchased or received a table saw that required installation of the blade guard were more likely to report on circumstances requiring the blade guard to be removed (85%) as compared to respondents who purchased or received a table saw with the blade guard installed (72%).

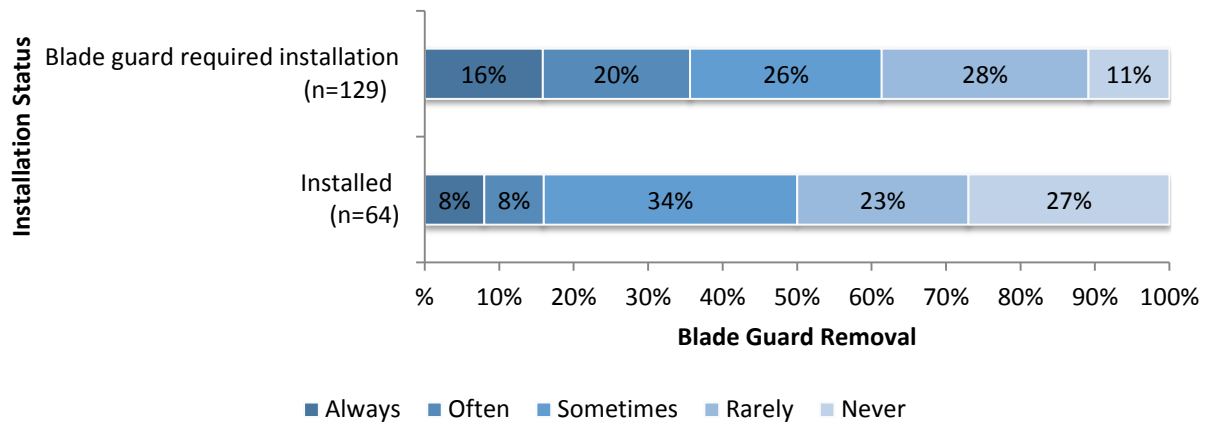
Figure 22. Reported Circumstances that Require Blade Guard Removed by Installation Status



*Significant at 0.05 level.

The frequency at which respondents operated their table saw with the blade guard removed was related to whether or not the blade guard was installed prior to purchasing or receiving their table saw (**Figure 23**). Respondents, who purchased or received their table saw without the blade guard installed, were more likely to report operating their table saw with the blade guard removed, “always” (16%) or “often” (20%). Individuals who purchased their table saw with the blade guard installed, were more likely to report operating the table saw “sometimes” (34%) or “never” (27%) with the blade guard removed.

Figure 23. Frequency of Operating Table Saw without Blade Guard by Installation Status

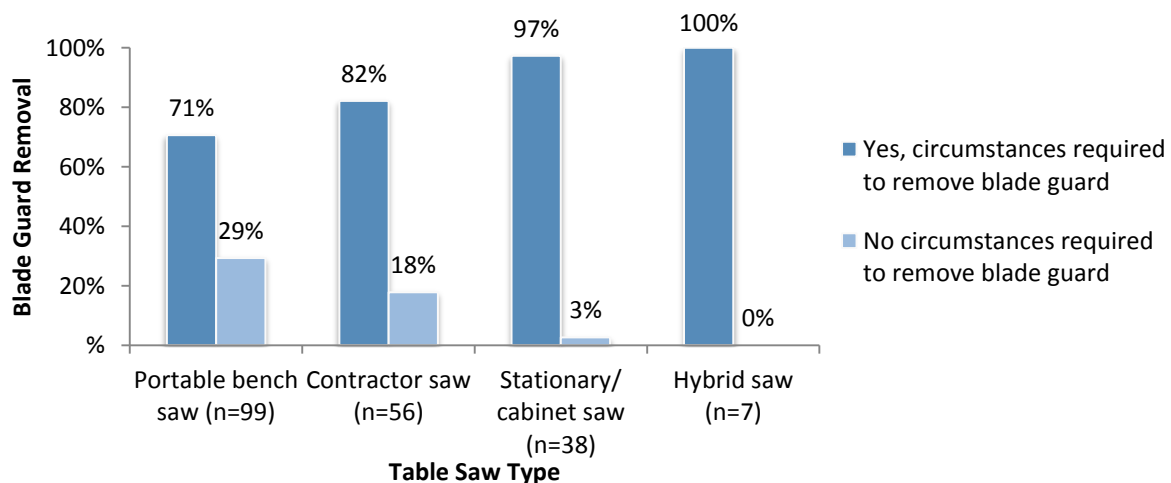


*Significant at 0.05 level.

Table Saw Type

Although the usage of the different types of the table saw was not evenly distributed, preventing robust comparisons within these groups, the blade guard usage behavior across different types of table saw shows a consistent pattern (**Figure 24**). Respondents that used a stationary saw reported knowledge of the circumstances requiring blade guard removal at a higher rate as compared to respondents using a contractor or portable bench saw.

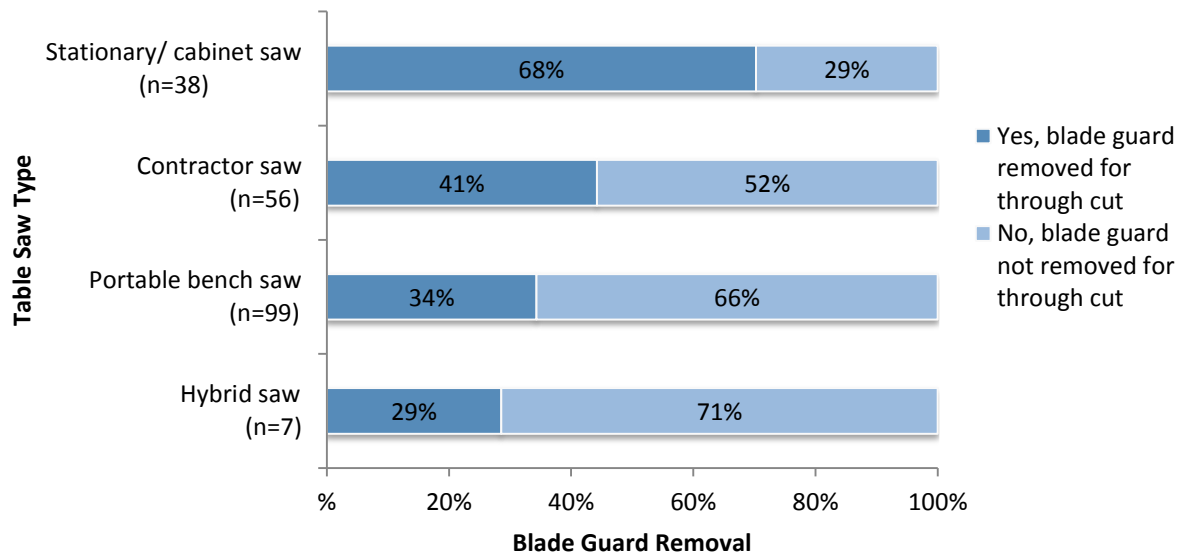
Figure 24. Reported Circumstances that Require Blade Guard Removal by Table Saw Type



*Significant at 0.05 level.

Respondents that use a stationary/cabinet saw were more likely (68%) to remove the blade guard for through cuts compared to contractor (41%) or portable bench saws (34%) users (Figure 25). The stationary/cabinet type of saw is more often used by experienced users, who perform more sophisticated cuts and, thus, need to remove the blade guard more often.

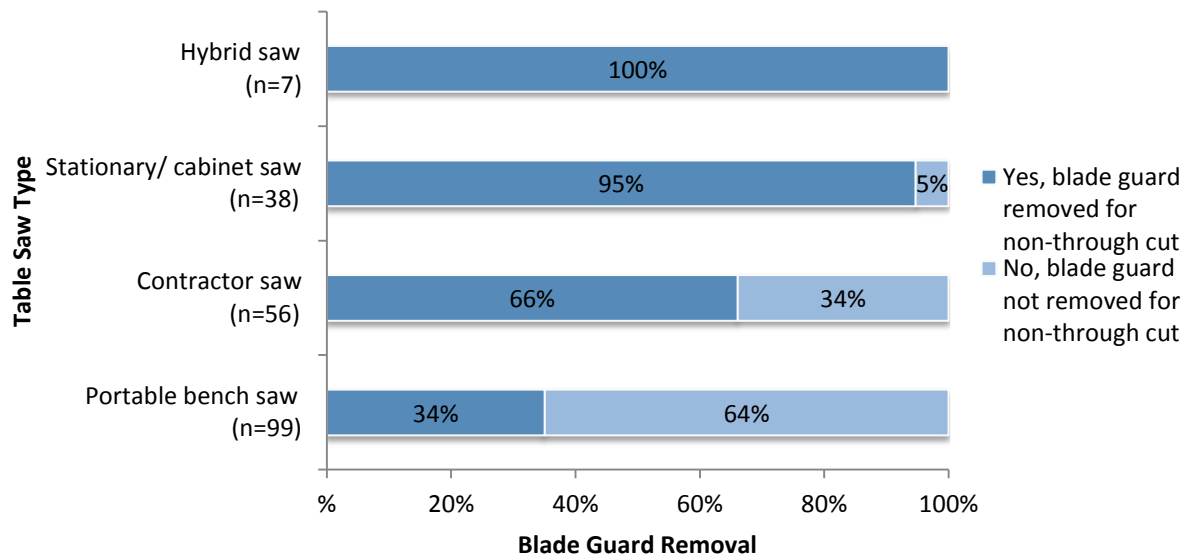
Figure 25. Blade Guard Removal for Through Cut by Table Saw Type



*The percentages may not equal 100 because the response option "Don't know/Refused" (2%) was removed due to low responses
 **Significant at 0.05 level.

The majority of stationary saw users (95%) reported removing the blade guard for non-through cuts while two thirds of contractor saw users (66%) and only one third of portable bench users (34%) removed the blade guard for non-through cuts (**Figure 26**). The portable bench saw user group include higher proportion of casual/hobbyist type of table saw users. Thus, they may be in less degree familiar with non-through cuts and perform this type of cuts not so frequently as other user groups. It should be noted that each survey participant received definition and examples of non-through cuts, before they were asked about removal of blade guard for non-through cuts.

Figure 26. Blade Guard Removal for Non-Through Cut by Table Saw Type



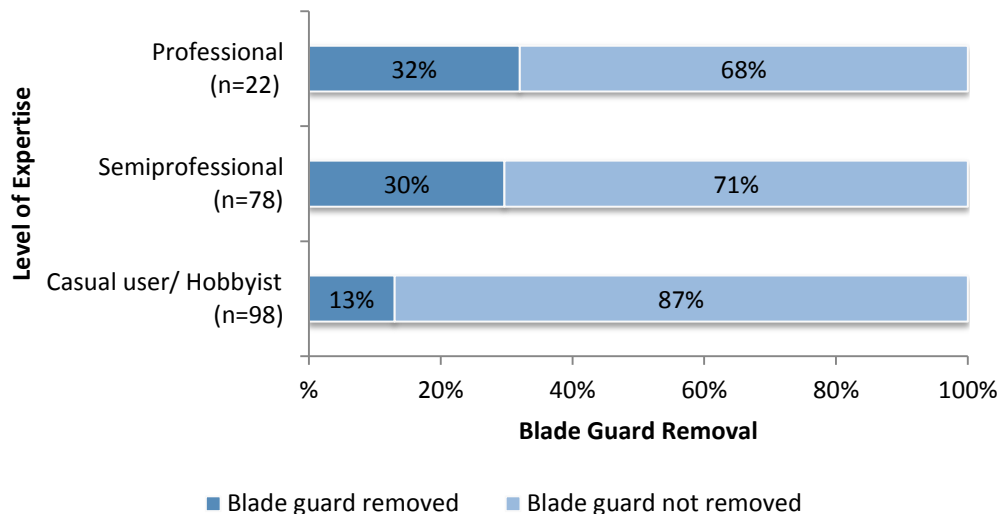
*The percentages may not equal 100 because the response option "Don't know/Refused" (2%) was removed due to low responses

**Significant at 0.05 level.

Experience Working with Table Saw

Respondents with more experience operating a table saw were more likely to remove the blade guard because the blade guard slowed down cutting (**Figure 27**). Respondents who identified themselves as “professional” and “semiprofessional” were more likely to remove blade guard because it slowed down cutting (32% and 30%, respectively). Conversely, respondents who identified themselves as “casual user/hobbyist” were less likely to answer “Yes” when asked if they remove the blade guard because it slows down cutting (13%).

Figure 27. Blade Guard Removal by Level of Expertise

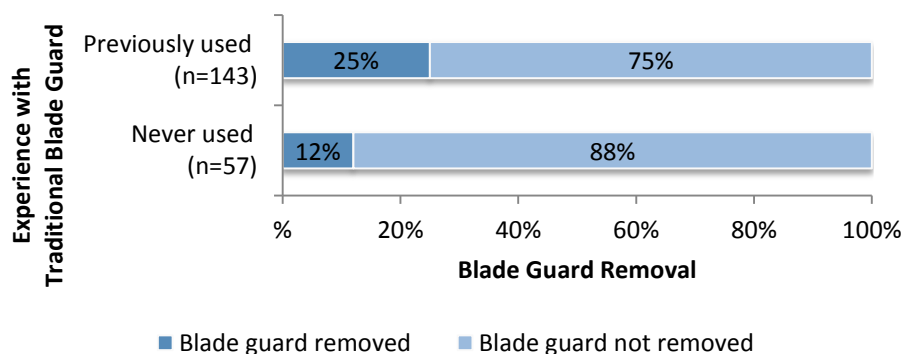


*Total percentages may not add up to 100% due to rounding.

**Significant at 0.05 level.

Respondents who had previously used a traditional blade guard with a table saw were more likely to remove the blade guard because the blade guard slowed down cutting (**Figure 28**). One quarter of respondents (25%) who reported previously using a traditional blade guard with a table saw said “Yes” when asked if they remove the blade guard because the blade guard slowed down cutting. Conversely, a little over one tenth of respondents (12%) who had not previously used a traditional blade guard said “Yes” when asked if they remove the blade guard out of the way because the blade guard slowed down cutting.

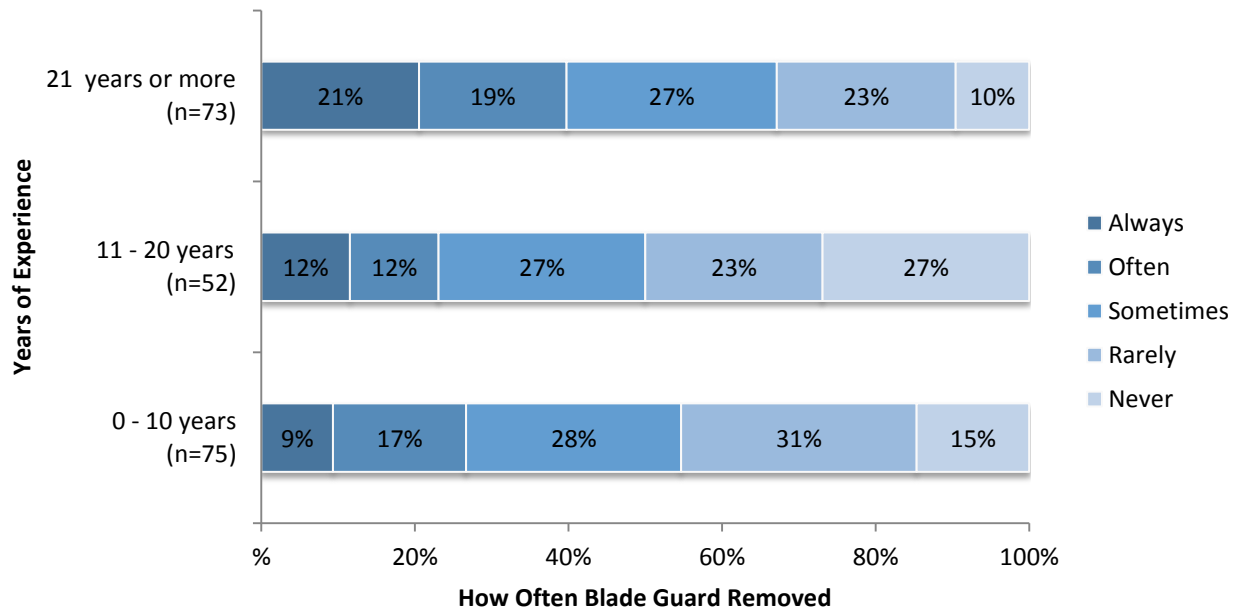
Figure 28. Blade Guard Removal by Experience with Traditional Blade Guard



*Significant at 0.05 level.

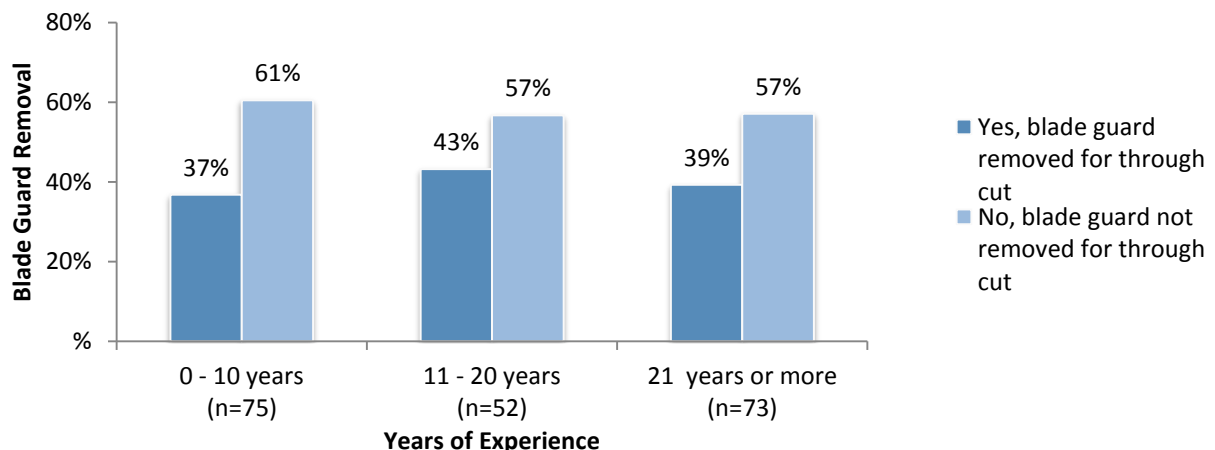
The relationship between the blade guard removal frequency and respondents' years of experience working with table saw was not statistically significant (**Figure 29**). However, the results suggest that the respondents with more experience (21 years and more) reported removing blade guard always or often at a higher rate (21% or 19%, respectively), than the respondents with 11 to 20 years of experience. While, respondents with 0 to 10 years of experience reported removing the blade guard on a slightly higher rate than those with 11 to 20 years of experience, but a lower rate than the group with the most experience working with table saw (21 years and more).

Figure 29. Blade Guard Removal Frequency by Respondent's Years of Experience



In the case of blade guard removal for through cuts, the groups with shortest and longest history working with table saws reported lower rates of blade guard removal than the respondents with 11 to 30 years of experience (**Figure 30**). However, the least experienced group reported the lowest rate of blade guard removal. Although the results show some pattern, the relationship between blade guard removal and through cut was not found to be statistically significant.

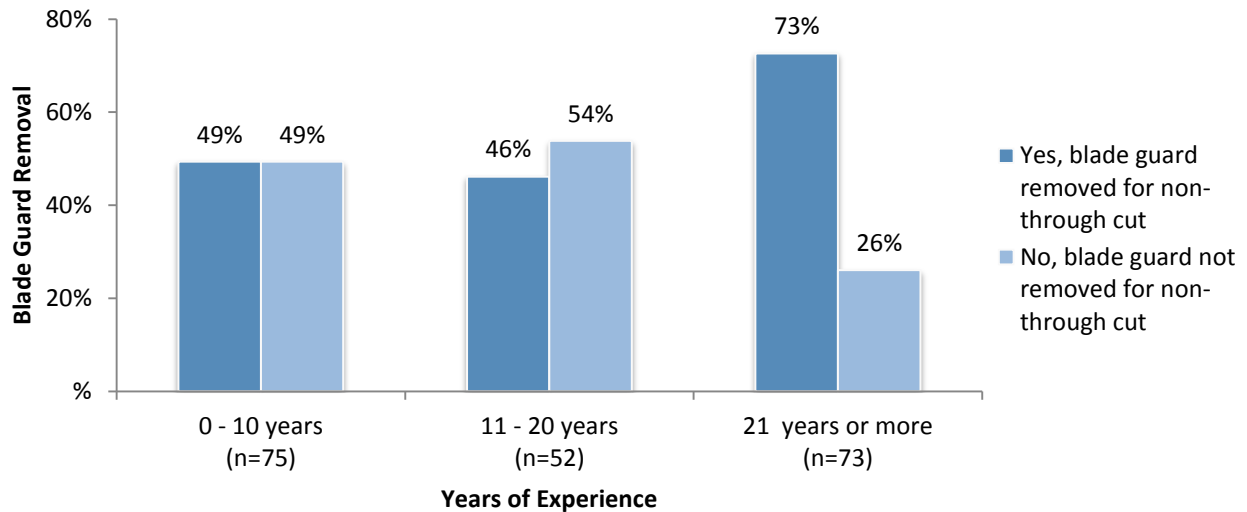
Figure 30. Blade Guard Removal for Through Cut by Respondent's Years of Experience



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

The analysis showed a statistically significant relationship between the blade guard removal for non-through cut and years of experience (**Figure 31**). The respondents with the most experience using table saw (21 years and more) more likely to report blade guard removal for non-through cut than the both groups with less experience.

Figure 31. Blade Guard Removal for Non-Through Cut by Respondent's Years of Experience

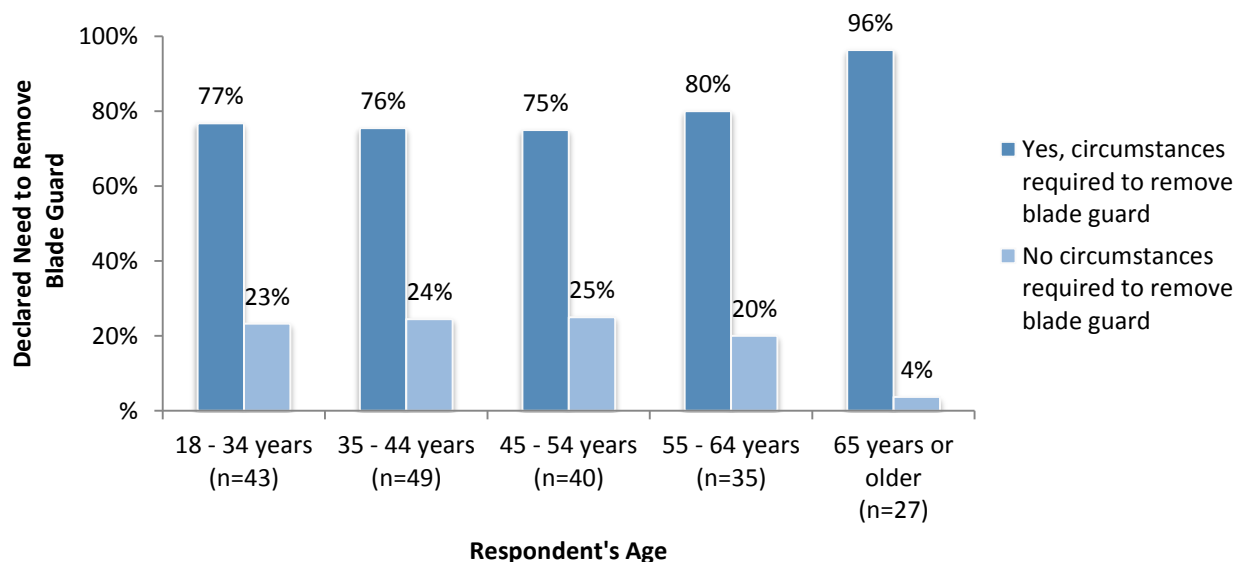


*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

Although the analysis did not established a statistically significant relationship between respondent age and blade guard removal, some results suggest the older respondents removed the blade guard at a higher rate than the younger users (Figure 32). The respondents who were 65 years or older reported knowing the circumstances requiring blade guard removal at a higher rate than all the other age groups.

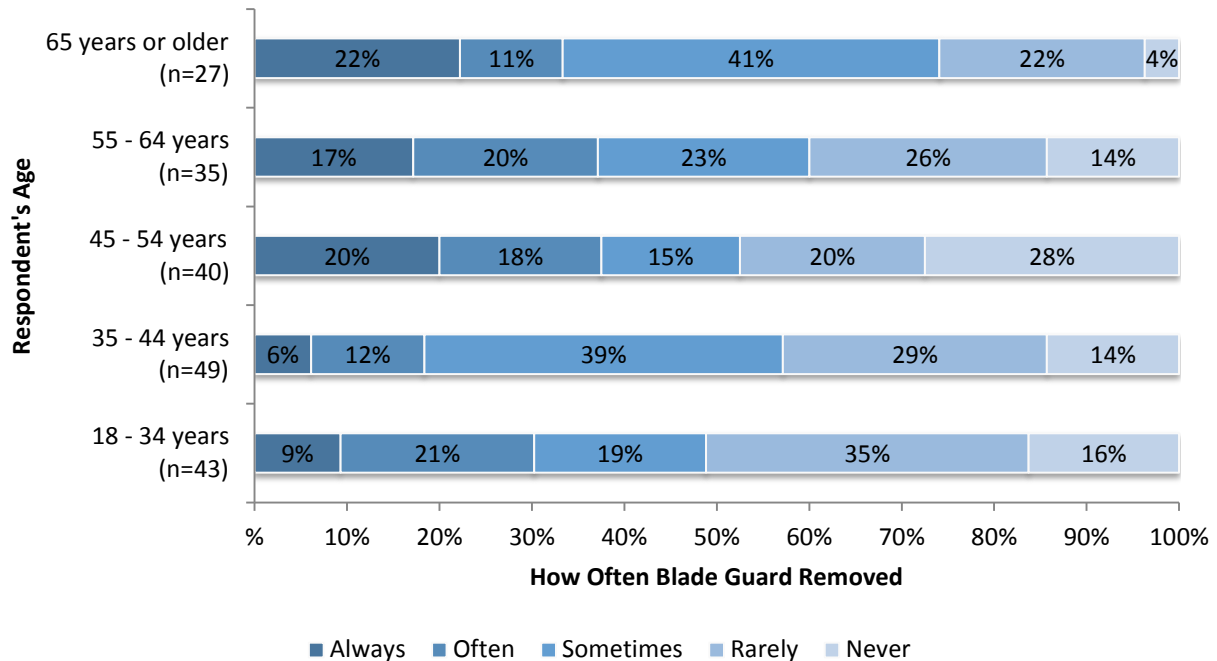
Figure 32. Reported Circumstances that Require Blade Guard Removed by Respondent's Age



* Information about age is not available for some respondents

The results of the analysis of the relationship between the respondents' age and reported blade guard removal frequency failed to show a clear pattern (**Figure 33**). The respondents in the 35 to 44 age group reported removing the blade guard "always" or "often" at the lowest rate (6% and 12 %, respectively) whereas the other age groups reported a higher frequency of blade guard removal. When aggregating the "always" and "often" responses for each age group, the respondents in the 45-54 and 55-64 age groups were most likely to remove the blade guard (38% and 37%, respectively), followed by the oldest age group (65 or older) at 33%.

Figure 33. Blade Guard Removal Frequency by Respondent's Age

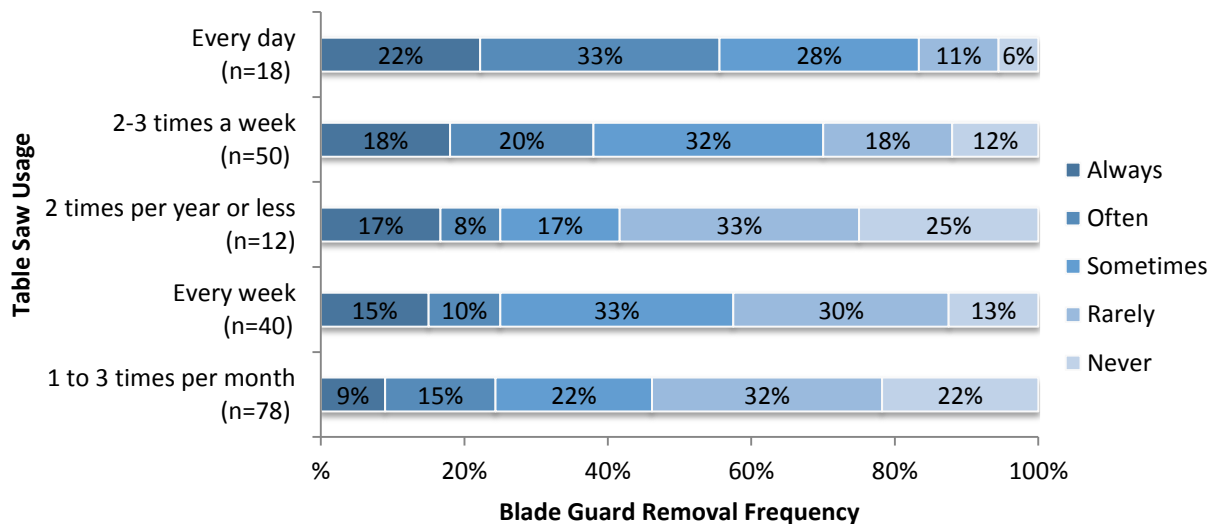


*Information about age is not available for some respondents

Table Saw Usage Frequency

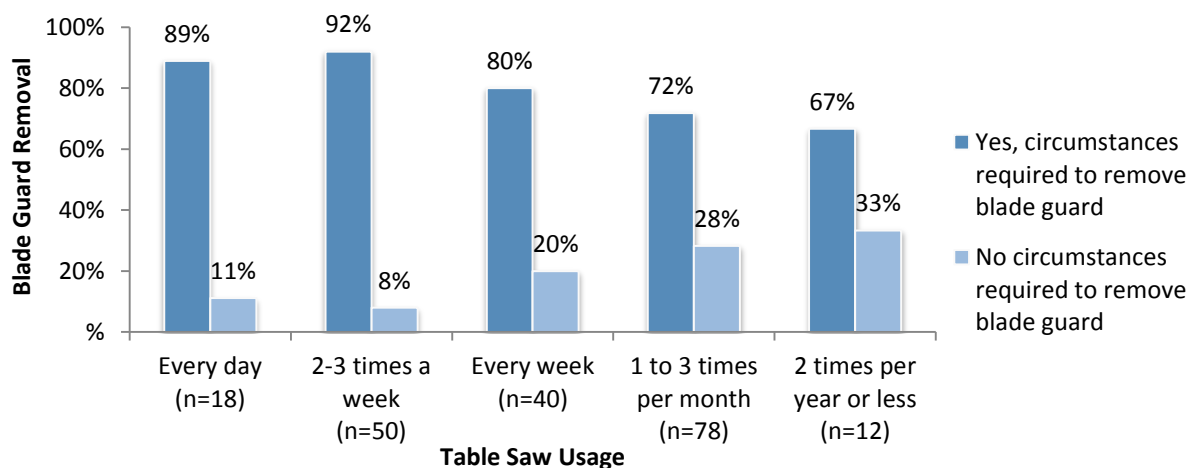
Although the results are not statistically significant, the analysis indicates a trend suggesting that the frequency of blade guard removal may be related to frequency of table saw usage (**Figure 34**). The respondents that use the table saw every day or 2-3 times a week reported blade guard removal always or often on a highest rate than the respondents that the remaining usage frequencies.

Figure 34. Blade Guard Removal by Table Saw Usage Frequency



The results show there is a statistically significant relationship between the frequency of table saw usage and respondents' report of knowing the circumstances that require the blade guard to be removed (**Figure 35**). The respondents that use the table saw every day or 2-3 times per week reported knowing the circumstances that require the blade guard to be removed at a higher rate than respondents that use the table saw 1 to 3 times per month or 2 times per year or less. These results suggest that the respondents who used table saw more often may feel more confident of their skills and thus remove the blade guard more often.

Figure 35. Reported Circumstances that Require Blade Guard Removed by Table Saw Usage Frequency

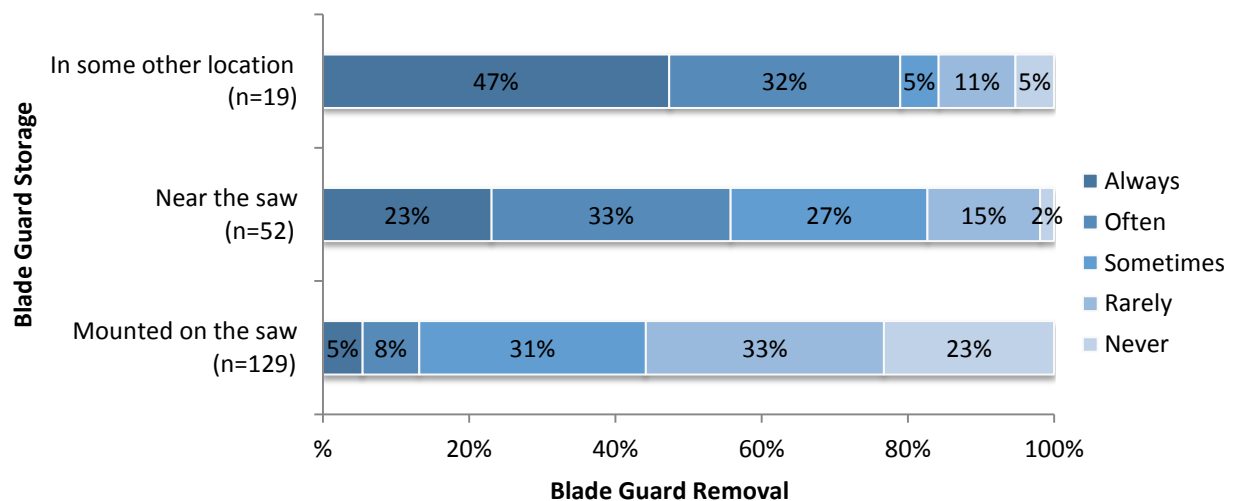


*Significant at 0.05 level.

Blade Guard Storage

The different locations for blade guard storage were reported at disproportionately different rate preventing robust statistical comparisons across these locations. However, when blade guard storage location is correlated with other variables, results show consistent trends. Respondents, who stored their blade guard further away from the table saw, were more likely to report operating their table saw with the blade guard removed (Figure 36). Respondents who reported storing their blade guard in a location not listed, or near the saw, but not mounted on the saw, were more likely to report always operating the table saw with the blade guard removed (47% and 23%, respectively). Conversely, respondents who reported storing their blade guard mounted on the saw were more likely to report rarely or never (33% and 23%, respectively) operating the table saw with the blade guard removed.

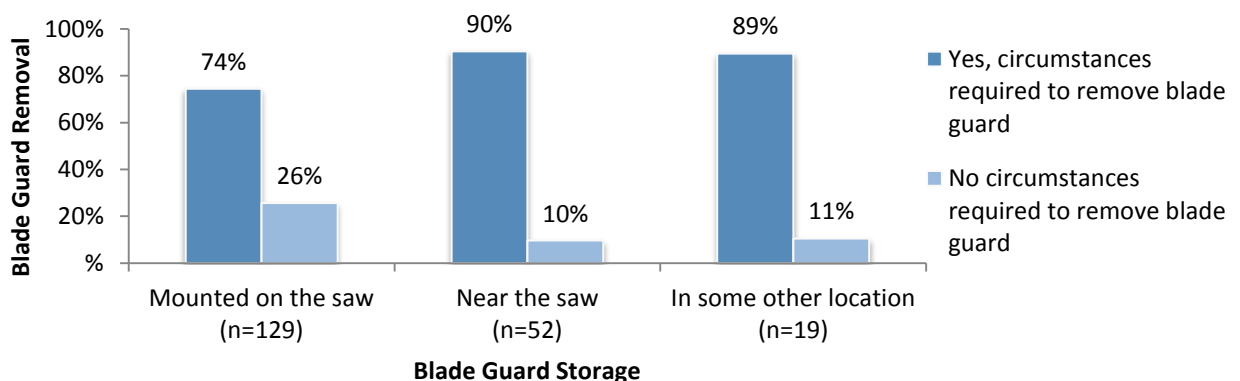
Figure 36. Blade Guard Removal Frequency by Blade Guard Storage Location



*Significant at 0.05 level.

Similarly, those respondents that reported the blade guard was stored near the saw or in some other location reported knowing of circumstances requiring removal if the blade guard at a higher rate (90% and 89%, respectively) than the respondents (74%) who stored the blade guard mounted on the table saw (**Figure 37**).

Figure 37. Reported Circumstances that Require Blade Guard Removed by Blade Guard Storage Location



*Significant at 0.05 level.

Respondents that stored the blade guard near the saw or in some other location also were more likely (48% and 63%, respectively) to remove the blade guard for through cuts than those respondents (37%) that stored the blade guard mounted on the saw (**Table 3**). Respondents were more likely (79%) to remove the blade guard for non-through cut if they stored the blade guard near the saw or in some other location compared to those (45%) that stored the guard mounted on the saw.

Table 3. Blade Guard Removal for Through Cut by Location of Blade Guard Storage

Blade Guard Storage Location	Blade Guard Removal			
	Through Cut		Non-Through Cut	
	Yes	No	Yes	No
Mounted on the saw (n=129)	37%	60%	45%	53%
Near the saw (n=52)	48%	52%	79%	21%
In some other location (n=19)	63%	26%	79%	21%

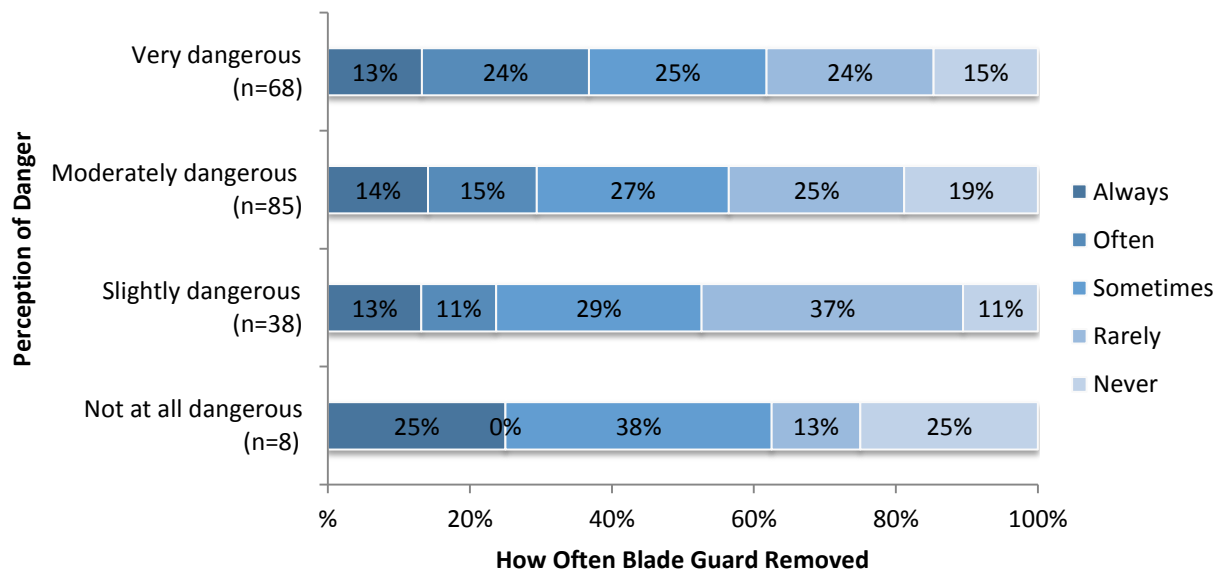
*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

**Significant at 0.05 level.

Safety Attitudes

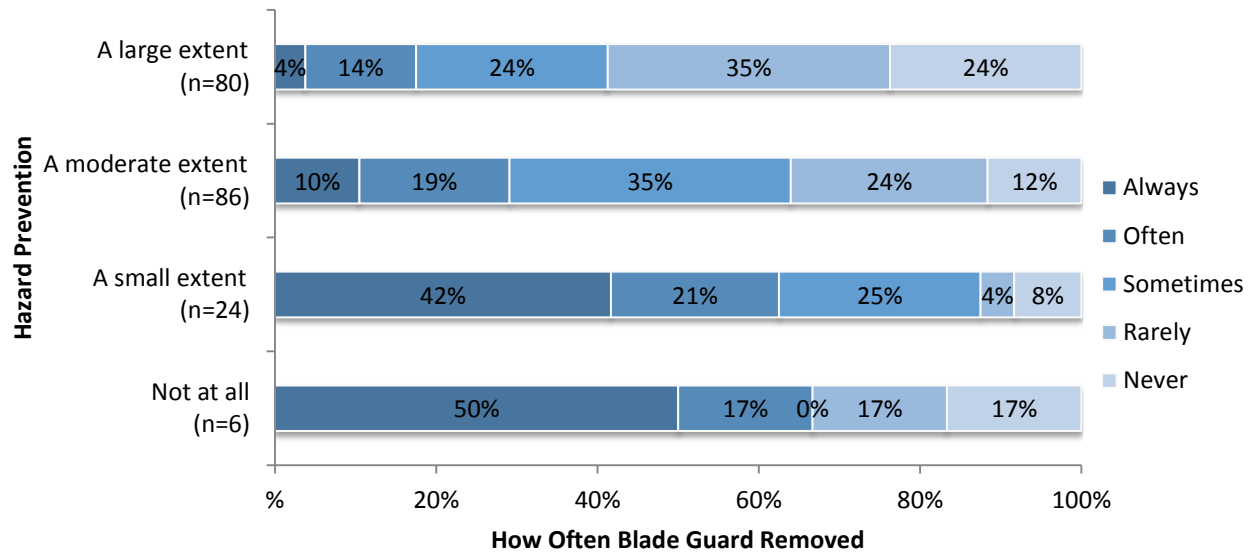
The analysis provided some evidence that the blade guard usage may be related to the safety attitudes toward the blade guard. The respondents that consider working with table saws as a very or moderately dangerous activity, were less likely to remove the blade guard (**Figure 38**).

Figure 38. Blade Guard Removal by Perception of Table Saw Danger



Those respondents that believe the blade guard prevents hazard to a large or moderate extent were less likely to remove the blade guard than those who believed the blade guard prevents hazard only to a small degree or not at all (**Figure 39**).

Figure 39. Blade Guard Removal by Perception of Blade Guard Hazard Prevention



*Significant at 0.05 level.

Similarly, respondents that believed the blade guard prevents hazard to a large or moderate extent were less likely to remove the blade guard for through and non-through cuts (**Table 4**).

Table 4. Blade Guard Removal for Through and Non-through Cuts by Blade Guard Hazard Prevention

Blade Guard Hazard Prevention	Blade Guard Removal			
	Through Cut		Non-Through Cut	
	Yes	No	Yes	No
A large extent (n=80)	31%	65%	49%	51%
A moderate extent (n=86)	49%	49%	60%	38%
A small extent (n=24)	46%	54%	67%	29%
Not at all (n=6)	50%	50%	67%	33%

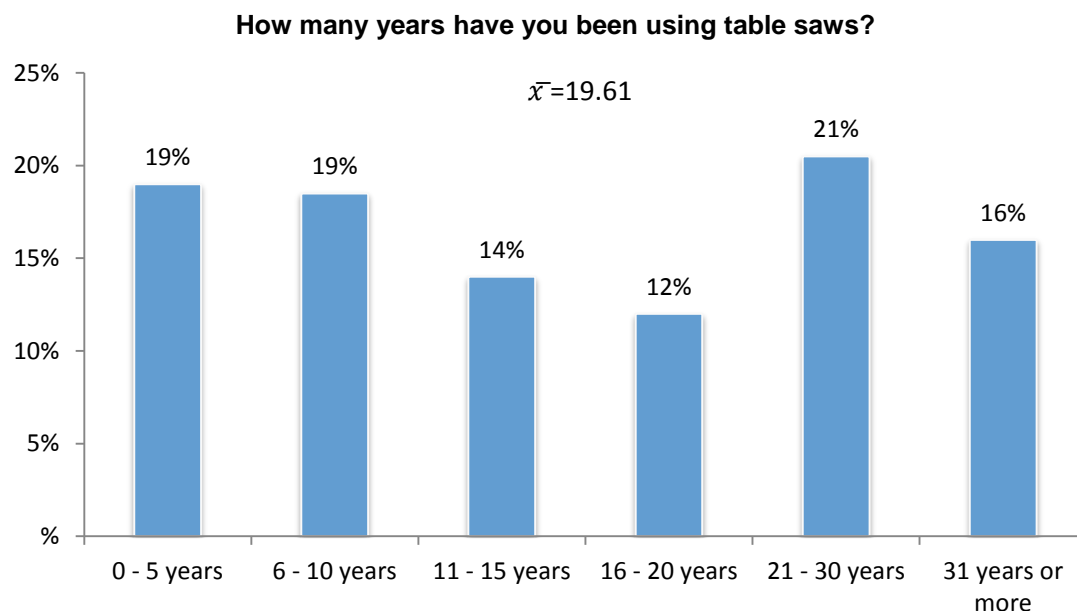
3.7. Table Saw Experience

The Modular Blade Guard Use Survey asked respondents to provide information on the extent of their experience working with table saws. Respondents were asked to rate their level of expertise and table saw skill level, and to provide the number of years they have been using table saws. In addition, respondents were asked about their prior experience with traditional blade guards and to compare it to their current experience with modular blade guards. Finally, respondents were offered the opportunity to discuss their experience with modular blade guards.

Years of Experience

On average, respondents reported having nearly 20 years of experience using table saws (**Figure 40**). Over half of the respondents (52%) reported having 15 years or less of experience with using the table saws. The other half of the respondents (49%) reported having over 15 years of experience with using table saws.

Figure 40. Respondents' Years of Experience Using Table Saw



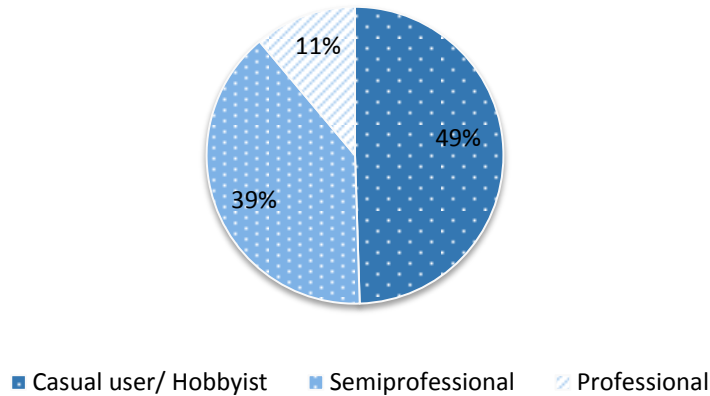
**n=200

Level of Experience

A majority of respondents (88%) identified their level of expertise as either “casual user/hobbyist” (49%) or “semiprofessional” (39%) (**Figure 41**). Only 1 in 10 respondents (11%) identified themselves as a “professional.”

Figure 41. Distribution of table saw user level of expertise.

Which of the following best describes your level of expertise using table saws?



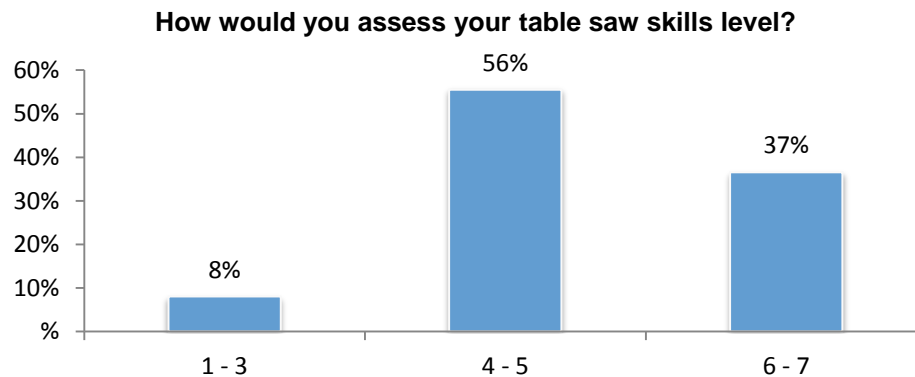
*n=200

**The percentages do not equal 100 because the response option “Don’t know/Refused” (1%) was removed due to low responses.

Table Saw Skill Level

Respondents were asked to rate their table saw skill level on a scale from 1 to 7, where 1 is the lowest skill level and 7 is the highest. Over half of the respondents (56%) estimated their table saw skills at a low to moderate level (a score between 4 and 5) (**Figure 42**). A smaller, yet notable, portion of the respondents (37%) evaluated their skills as moderately high (score 6 or 7). Less than a tenth of the respondents (8%) identified their table saw skill level to be very low (score between 1 and 3).

Figure 42. Respondents’ Table Saw Skill Level



*n=200

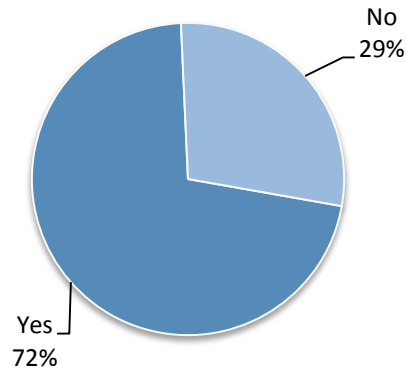
**Total percentages may not add up to 100% due to rounding.

Traditional Blade Guard Usage

When asked if respondents had ever used a traditional blade guard with a table saw, almost three quarters of respondents (72%) said “Yes” (**Figure 43**). Over a quarter of respondents (29%) reported having never used a traditional blade guard with a table saw.

Figure 43. Previous Use of Traditional Blade Guard

Have you ever used a traditional blade guard with a table saw?



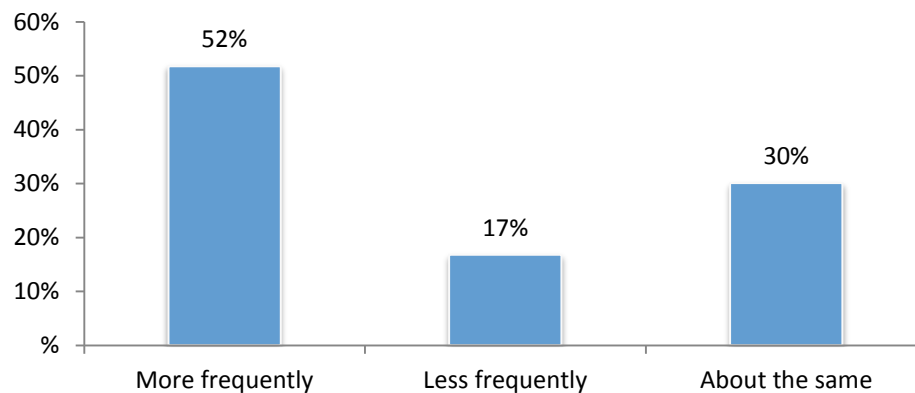
*n=200

**Total percentages may not add up to 100% due to rounding.

Respondents who reported using a traditional blade guard with a table saw in the past were asked to compare the frequency of using the modular blade guard compared to the traditional blade guard (**Figure 44**). Over half of the respondents (52%) reported using the modular blade guard “more frequently.” Almost one third of respondents (30%) stated that they used the traditional guard as frequently as they used the modular guard. The remaining respondents reported using the modular blade guard “less frequently” (17%).

Figure 44. Frequency of Using Modular Blade Guards versus Traditional Blade Guards

Have you used the modular blade guard more or less frequently, or about the same as the traditional blade guard?

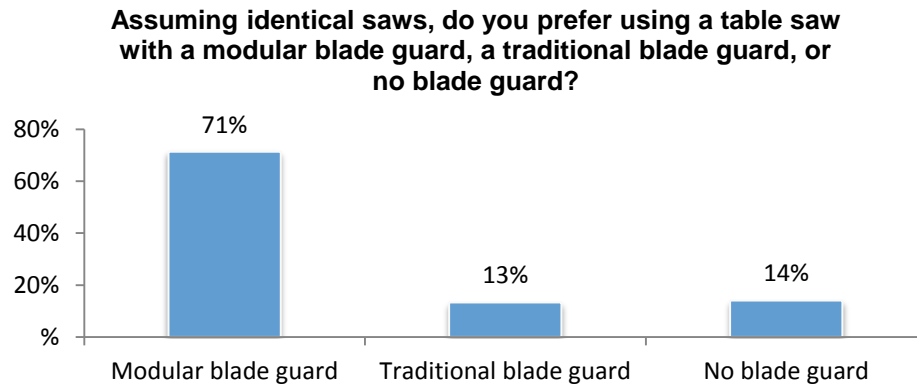


*n=143

**The percentages do not equal 100 because the response option “Don’t know/Refused” (1%) was removed due to low responses.

In addition, a majority of respondents (71%) who have used a traditional blade guard with a table saw reported a preference for a modular blade guard over a traditional blade guard or no blade guard (**Figure 45**). The remaining respondents who answered the question preferred either no blade guard (14%) or a traditional blade guard (13%).

Figure 45. Modular Blade Guard versus Traditional Blade Guard Preference

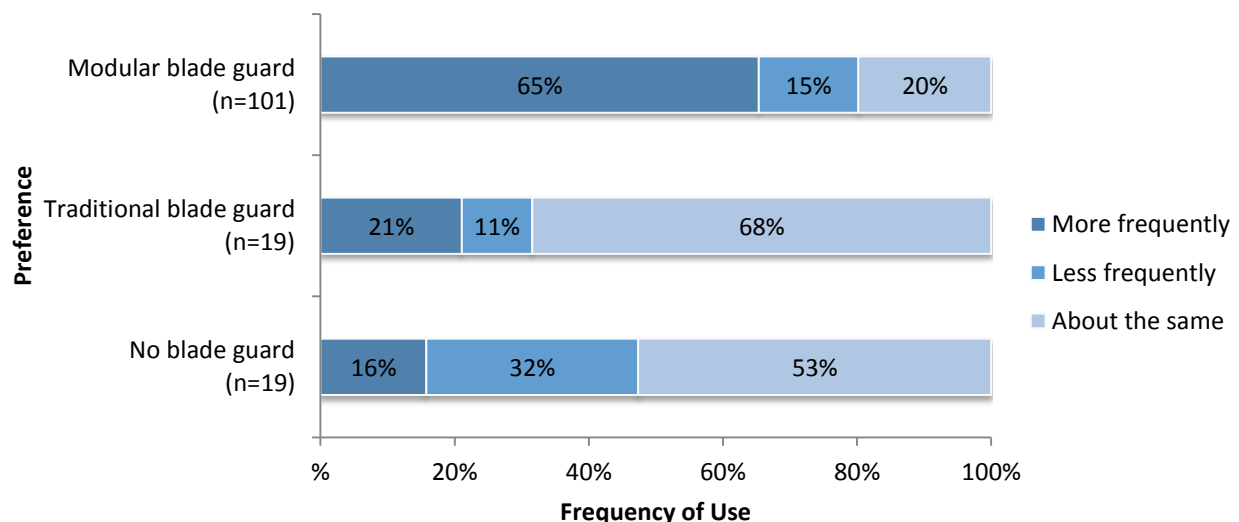


*n=143

**The percentages do not equal 100 because the response option "Don't know/Refused" (1%) was removed due to low responses.

Modular blade guard usage was related to the type of blade guard, if any, respondents reported as preferred (**Figure 46**). Respondents who preferred the modular blade guard, over traditional blade guards or no blade guard, reported using the modular blade guard more frequently (65%), compare to respondents who preferred traditional blade guards or no blade guard (21% and 16%, respectively).

Figure 46. Frequency of Modular Blade Guard Usage by Blade Guard Type Preference



*Significant at 0.05 level

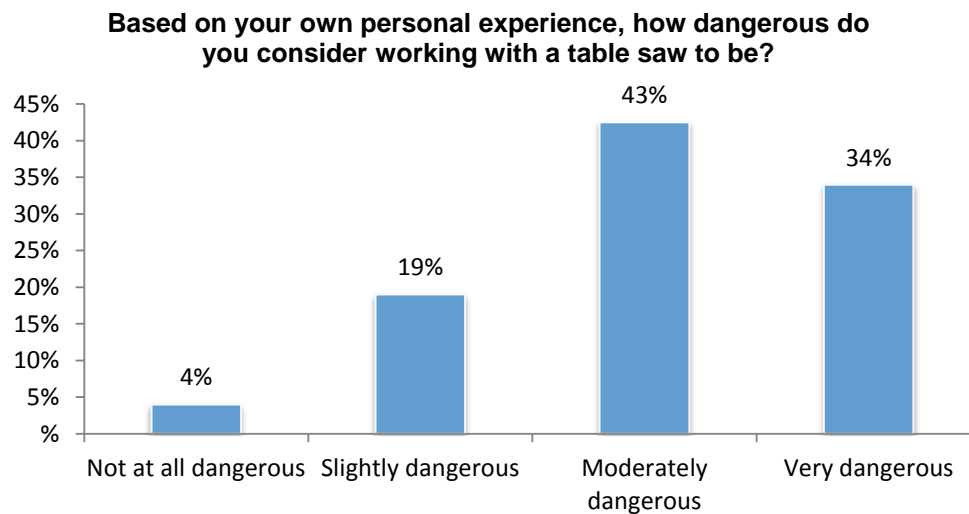
3.8. Safety Attitudes

Safety attitudes toward table saw usage and operation were measured by asking respondents questions regarding their perception of hazard associated with operating table saws and the extent to which blade guards prevent hazards associated with operating a table saw.

Respondents were first asked to gauge how dangerous they consider working with table saws to be. Secondly, respondents were asked to note the extent to which modular blade guards prevent hazards associated with operating a table saw.

Respondents were asked to gauge how dangerous they consider working with table saws to be (Figure 47). A majority of respondents (77%) reported that working with a table saw was either “moderately dangerous” (43%) or “very dangerous” (34%). Less than a quarter of respondents (23%) reported that working with a table saw was “slightly dangerous” (19%) or “not at all dangerous” (4%).

Figure 47. Perceived Level of Danger While Operating Table Saw.

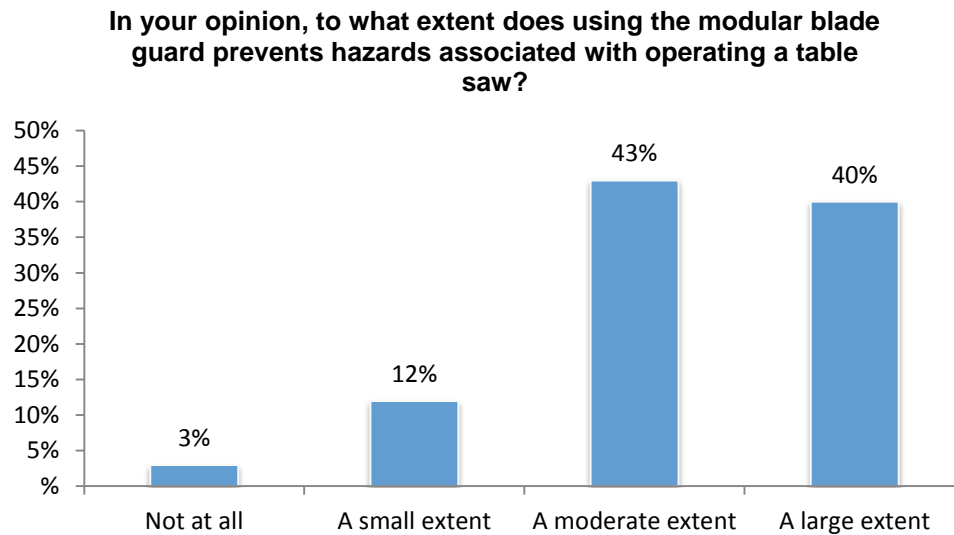


*The percentages do not equal 100 because the response option “Don’t know/Refused” (1%) was removed due to low responses.

**n=200

In addition, respondents were asked to note the extent to which modular blade guards prevent hazards associated with operating a table saw (**Figure 48**). A majority of respondents (83%) reported that modular blade guards prevent hazards associated with operating a table saw to either “a moderate extent” (43%) or “a large extent” (40%). The remainder of respondents (15%) reported that using a modular blade guard prevents hazards associated with operating a table saw to either “a small extent” (12%) or “not at all” (3%).

Figure 48. Extent to Which Modular Blade Guard Prevents Table Saw Hazards



*The percentages do not equal 100 because the response option “Don’t know/Refused” (2%) was removed due to low responses.

**n=200

4. Conclusions

The following section presents a summary of main results and conclusions gathered through the Modular Guard Survey.

Respondents' Table Saw Characteristics

- The most frequently cited table saw manufacturers were Dewalt (17%), Craftsman (14%), SawStop (12%), and Bosch (12%).
- The most frequently used table saw was the portable bench saw, as roughly half of the respondents (50%) reported owning a portable bench saw.
- Three-fifths of the respondents (61%) reported purchasing their table saw after 2012. A vast majority of the respondents (97%) noted that their table saw was new when they purchased or received it.

Respondents' Table Saw Use

- Almost half of the respondents (45%) were regular table saw users who used their table saw "2 – 3 times a week" (25%) or "every week" (20%). Nearly two-fifth of respondents (39%) used table saw "1 to 3 times per month."
- Overall, the oldest (65 and older) and the youngest (18-24 years) age groups of respondents tended to use the table saw more frequently, with 52% and 49% of respondents of these groups respectively reported using the tables from every day to 2 – 3 times a week.

Respondents' Table Saw Experience

- Overall, the years of experience using table saws showed a balanced distribution. On average, respondents reported having nearly 20 years of experience using table saws. Over half of the respondents (52%) reported having 15 years or less of experience with using the table saws. The other half of the respondents reported having over 15 years of experience with using table saws.
- The respondents were primarily "casual users/hobbyist" (49%) and "semiprofessional" (39%) table saw users.
- A majority of respondents (72%) had experience using a traditional blade guard with a table saw before. This finding is consistent with previous data considering the fact survey respondents had, on average, 20 years of table saw experience, and the modular blade guard is only 6 years old.
- Among respondents who reported having experience with a traditional blade guard (72%), over half the respondents (52%) reported using the modular blade guard more frequently as compared to the traditional blade guard. Moreover, almost three quarters of respondents (71%) preferred using the modular blade guard compared to a traditional blade guard or no blade guard at all.

Respondents' Blade Guard Use

- Almost two-thirds of respondents (65%) reported that their table saw did not come with the blade guard installed and it required installation. Among these respondents, a majority (83%) reported installing the blade guard prior to using it the first time.
- Respondents who indicated that they either installed the blade guard only after using the table saw first (12%) or never installed it (5%) reportedly did so because they wanted to see how the table saw worked or because they had to perform a type of cut that required the blade guard to be removed.
- A vast majority of respondents (93%) reported that their blade guard was in "good condition, with no parts missing."

Blade Guard Removal

- Respondents were asked if they know of any circumstances that require the modular blade guard to be removed and how often they are using table saw without blade guard:
 - A majority of respondents (80%) reported that there are circumstances which require the blade guard to be removed. Only one-fifth of the respondents (20%) stated that they are not aware of any circumstances that require the blade guard to be removed.
 - Two-fifths of respondents (42%) reported removing the blade guard either “never” (16%) or “rarely” (26%), and over one-quarter of respondents (28%) reported removing the blade guard “sometimes”. Less than a third of respondents (31%) reported removing the blade guard either “often” (17%) or “always” (14%).
- Respondents, who indicated they operated their table saw with the modular blade guard removed or positioned out of the way were asked at what point they reinstall their blade guard:
 - The most frequently cited time periods at which respondents typically re-install the blade guard after removing it were “The next cut that can be done with the blade guard” (32%) or “After finishing the task for which it was removed” (28%).
 - Among respondents who reported re-installing the blade guard “some other time” (12%), the most commonly provided times were when the respondent remembered to do so, its re-installation depended on the task being completed, or when visibility was not an issue.
- Respondents were asked about their usage of blade guard during through and non-through cuts:
 - Respondents were more likely to report removing their blade guard for non-through cuts (57%) compared to through cuts (43%). Based on the open-ended responses, this is because non-through types of cuts are more likely to require the blade guard to be removed or positioned out of the way compared to through cuts.
 - More than half of the respondents (57%) reported removing the blade guard for non-through cuts. However, almost half of the respondents (46%) reported performing non-through cuts “sometimes,” and two-fifths (41%) reported performing non-through cuts “rarely” (34%) or “never” (7%).

Reasons Operating Table Saw Without a Blade Guard

To understand why someone might operate a table saw without using a blade guard, respondents were asked to select from a list of reasons why they might remove or position their blade guard out of the way.

- The top three reasons for why someone might operate the table saw with the blade guard removed or positioned out of the way were: “Some cuts are difficult or impossible with the blade guard in place” (82%), “Makes cutting more difficult or awkward” (56%), and “Blocks my view of the wood while cutting” (44%).
- Among respondents who reported removing or positioning the blade guard out of the way because “some cuts are difficult or impossible with the blade guard in place” (82%), the top reported cuts were: non-through cuts (38%), narrow/thin cuts (19%), and angled/curved cuts (17%). Of the non-through cuts, the dado cut was the most frequently cited type of cut (60%) which required the removal of the blade guard.

Circumstances Requiring the Blade Guard to be Removed

In addition to answering to the questions presenting the list of reasons why someone may operate a table saw without a blade guard, respondents were given the opportunity to provide feedback on the circumstances requiring the blade guard to be removed through the open-ended questions. The qualitative analysis identified the following main themes:

- In two-thirds of the responses (66%), respondents indicated that circumstances causing removal of the blade guard were related to the type of cut being performed. The top three cuts requiring respondents to remove their blade guard were dado cuts, small cuts, and curved/angled cuts. This finding is consistent with the main reason respondents selected for removing or positioning their blade guard out of the way.
- Almost a third of responses (30%) cited issues related to usability with their table saw and/or blade guard for why they might have removed their blade guard. The top three issues related to the usability of the table saw and/or blade guard pertained to inconvenience handling a large or very small piece being cut, cleaning/maintenance of the table saw, and issues related to visibility.

Factors Related to Blade Guard Removal

Among the many factors investigated for modular blade guard removal, only blade guard installation status when table saw was purchased and users experience working with table saw showed consistent and statistically significant effect:

- Respondents who purchased or received a table saw that required installation of the blade guard were more likely to report circumstances that required the blade guard to be removed (85%).
- Additionally, respondents who purchased or received their table saw without the blade guard installed were more likely to report operating their table saw with removed blade guard “always” or “often” (16% and 20%, respectively) than individuals with the pre-installed blade guard, who reported operating the table saw without blade guard “always” (8%) or “often”(8%).
- Respondents with more experience were more likely to remove or position the blade guard out of the way because the blade guard slowed down cutting. Respondents who identified themselves as “Professional” were more likely to report removing or positioning the blade guard out of the way (32%) as compared to individuals identified as “Semiprofessional” or “Casual user/Hobbyist” (30% and 13%, respectively).
- The groups with shortest (0-10 years) and longest (21 years or more) history working with table saw reported lower rates of blade guard removal for through cuts than the respondents with 11 to 30 years of experience. The least experienced group reported the lowest rate of blade guard removal for through cuts. The respondents with the most experience using table saws (21 years and more) were more likely to report blade guard removal for non-through cuts than both the groups with less experience.
- Respondents who had previously used a traditional blade guard with a table saw were more likely to remove or position the blade guard out of the way because the blade guard slowed down cutting (25%) as compared to individuals who never used a traditional blade guard (12%).

This study also examined the relationship between the blade guard removal and other factors such as table saw usage frequency, type of table saw used, blade guard storage location, and blade guard type preference. Although these analyses did not provide consistently statistically significant results, the data show patterns that provide additional information about the modular blade guard usage:

- Users of stationary saws reported blade guard removal for through, non-through cuts, and knowledge of circumstances requiring blade guard removal at a higher rate compared to contractor or portable bench saw users.
- The respondents that use the table saw every day or 2-3 times a week reported blade guard removal at a higher rate than the respondents that use the table saw every week or 1 to 3 time per month. The respondents that use the table saw every day or 2-3 times reported knowing the circumstances that require the blade guard to be removed at a higher rate than those respondents that use the table saw 1 to 3 times per month or 2 times per year or less.

- Respondents who did not store their blade guard mounted on the tables saw were more likely to report operating their table saw with the blade guard removed or removing blade guard for through cuts, yet also reported knowing the circumstances requiring removal of the blade guard.
- Respondents who preferred the modular blade guard, over traditional blade guards or no blade guard, reported using the modular blade guard more frequently (65%), compare to respondents who preferred traditional blade guards or no blade guard.

5. Discussion of Results

The Modular Blade Guard survey was able to target the group of interest: non-professional home users of table saws with the modular blade guard system. The purpose of this selection was to obtain information on modular blade guard usage from the respondents who use their table saws at home and who do not necessarily have professional training. Additionally, the survey targeted this group to avoid any confounding of results by professional users who use table saws at their workplace or workshop, which may be governed by the OSHA regulations. The survey sample involved participants who are using varied types and models of table saws with a balanced distribution of level and extent of experience working with table saws.

In anticipation of difficulties that may be encountered while gathering reliable information regarding such acts as blade guard removal, as an indirect measure of blade guard non-use, the survey employed a two-step process. First, respondents were asked if they know of any circumstances that require the blade guard to be removed. Then they were asked directly how often they operated table saw without the blade guard. As expected these two measures provided inconsistent results. Although a majority of the respondents (80%) stated that they know about the circumstances that require removal of the blade guard during the work with table saw, only one-third (31%) admitted to actually working the table saw without the blade guard “often” or “always” and over one-quarter of respondents (28%) reported removing the blade guard “sometimes.” The questions about removal of the blade guard for through and non-through cuts provided quite high estimates of blade guard removal behavior.

On several occasions, respondents were given the opportunity to discuss circumstances and reasons for removal of the blade guard and operating table saw without blade guard. Both qualitative and quantitative analysis revealed consistent results regarding the reasons for the blade guard removal. The main reason for the blade guard removal is that some cuts cannot be completed with the guard in place. The top three cuts that respondents were systematically reporting across different questions as requiring blade guard removal were dado cuts, small cuts, and curved/angled cuts. The second most often reported group of circumstances or reasons why respondents had to remove the blade guard related to various usability issues, such as visibility issues, difficulty cleaning/maintaining the table saw with blade guard installed, and inconvenience of handling very large or very small pieces of wood.

The analysis explored bivariate relationships between measured variables to identify the factors that may affect blade guard removal behavior. This analysis was quite limited due to the small cell sample sizes or unbalanced size of compared subgroups. Among the many factors that were related to the blade guard removal, only blade guard installation status when the table saw was purchased and users experience working with table saws showed consistent and statistically significant effects. The results revealed that the respondents who purchased or received their table saw without the blade guard installed might be more likely to operate the table saw without the blade guard. These results were consistent across different variables investigated. Respondents who purchased or received a table saw that required installation of the blade guard were more likely to report circumstances that required the blade guard to be removed, as compared to the table saw users who purchased table saws with the blade guard pre-installed.

Respondents who received their table saw without the blade guard installed were more likely to report operating their table saw with the blade guard removed as compared to individuals with the pre-installed blade guard. Those users who received the table saw with pre-installed blade guards were less likely to remove the guard or operate the table saw without blade guard. These results may be explained as follows: when the blade guard comes as a separate piece and its installation depends on user discretion, users may have perceived the blade guard more as optional rather than necessary element and thus treat it as such.

In addition to blade guard installation, this study also examined the relationship between the blade guard removal and such factors as table saw usage frequency, type of table saw used, blade guard storage location, blade guard type preference, and safety attitudes. Although, these analyses did not allow for robust conclusions, the results show trends that provide additional information about the modular blade guard usage. The evidence of relationship between the table saw usage and blade guard removal may suggest that the respondents who used table saw more often may feel more confident of their skills and thus remove the blade guard more often. This conclusion is consistent with the results showing that the respondents with more experience working with table saws removed the blade guard more often than the respondents that declared less experience. In addition, location of the blade guard storage after removal from the table saw is also related to the frequency of operating table saw without blade guard installed. Respondents, who reported blade guard stored near the saw or in some other location were more likely to report operating their table saw with the blade guard removed compared to those that stored their blade guard mounted on the table saw.

6. Appendix A. Modular Blade Guard Use Survey

Interviewer: Do not read aloud the “Don’t know/Refused” option at any time during the interview. Only record this option if the respondent provides it him or herself. If the respondent indicates that they don’t know the answer to a question, mark the appropriate answer or fill in “DK” in the space provided.

I. Contact

- (1) Hello. May I speak with _____?

Do not read the choices aloud. Mark the appropriate choice.

- Person is available → **Skip to Q3**
- Person is unavailable

- (2) When is a good time to contact him/her? **Interviewer: Terminate interview until the recruited respondent is available. Do not substitute respondents.**

- (3) Hello. I’m _____. I am with EurekaFacts, a research company located in Maryland. We are performing a study for the U.S. Consumer Product Safety Commission to learn more about table saw blade guard use. You indicated that you’d be willing to be part of this study by contacting Westat based on their outreach effort. The survey should take about 25 minutes to complete, and if you qualify and complete the survey you will receive \$50 to thank you for your time. Are you still interested in participating in this survey?

- Agreed
- Refused → **Interviewer: Terminate interview. Inform the respondent that the \$50 incentive is not provided for incomplete interviews.**

II. Demographic Data Verification

- (4) There is some information that we need to verify before we begin the survey. This will only take a few moments.
- (5) We have your age recorded as _____. Is this correct?

Interviewer: Fill in the blank with the age provided by Westat. Do not read the choices. If age is not provided, then ask “What is your age?” and fill in the results in the “No” response and indicate the respondent’s age.

- a) Yes
- b) No, the correct age is _____.
- c) Refused

- (6) Our records indicate that the manufacturer of your table saw is _____. Is this correct?
Interviewer: Fill in the blank with the information provided from Westat.

If this information is not available from the screener, ask: Who is the manufacturer of your table saw? **(If the respondent does not have this information, and cannot/will not obtain it while on the phone, enter “Don’t Know” and move to the next question.)**

- a) Yes
- b) No → Who is the correct manufacturer? _____
- c) Don’t know/refuse

- (7) Our records indicate that the model of your table saw is _____. Is this correct?
Interviewer: Fill in the blank with the information provided from Westat.

If this information is not available from the screener, ask: What is the model name or number of your table saw? **(If the respondent does not have this information, and cannot/will not obtain it while on the phone, enter “Don’t Know” and move to the next question.)**

- a) Yes
- b) No → What is the model of your table saw? _____
- c) Don’t know/refused

III. The Participant’s Table Saw

- (8) To begin, I have a few questions about your table saw. I am going to read you descriptions of different types of table saws and ask you to identify which of the descriptions match the saw that you own.

Interviewer: Please read the definitions provided below to identify the type of saw owned. Terminate interview if respondent does not own at least one of the three saws identified below or says he/she only owns a hand saw, circular saw, band saw, jigsaw, sabre saw, or hacksaws, etc.

- A benchtop portable bench saw is a lightweight and compact saw with an aluminum tabletop and is easily carried around. This saw is typically set on a bench-top or other raised surface. Some models may include removable stands or foldable legs.
- A contractor saw is a medium-duty, semi-portable machine that ranges from 200 to 350 pounds. These saws usually feature a cast iron table top and have an open, attached stand or base that reaches to the floor.
- A stationary saw also called a cabinet saw is a heavy-duty saw that sits on the floor, has a large table top and has a closed cabinet stand that reaches to the floor. It is also sometimes referred to as an industrial table saw.

Which type of table saw do you own?

- a) Portable bench saw
- b) Contractor saw
- c) Stationary/Cabinet saw (also known as an industrial table saw)
- d) **Other Type (Please specify) → _____ Interviewer: Note and continue if R identifies “hybrid saw.” Terminate for any other type mentioned.**

- e) None of these → **Interviewer: Terminate interview. Inform the respondent that the \$50 incentive is not provided for incomplete interviews.**
- f) Don't know/Refused

(9) The blade guard of a table saw surrounds the portion of the blade protruding through the saw table top. The guard lifts out of the way when material is fed into the saw. Blade guards are commonly made of transparent plastic but sometimes of metal. A traditional blade guard has a single-piece hood resting over the saw blade. A modular blade guard system, also called a dual guard system, has two sections that operate independently on either side of the blade.

Did the table saw come with a modular blade guard or a traditional blade guard?

- a) Modular/dual blade guard → **Verify that the respondent is considering only a modular blade guard system and not a traditional blade guard.**
- b) Traditional blade guard → **Verify that this is the accurate answer. Terminate interview if determined to be correct. They do not qualify for the study. They will not receive the \$50 incentive.**
- c) Did not come with a blade guard → **Verify that this is the accurate answer. Terminate interview if determined to be correct. They do not qualify for the study. They will not receive the \$50 incentive.**
- d) Don't know/refused → **Verify that this is the accurate answer. Terminate interview if determined to be correct. They do not qualify for the study. They will not receive the \$50 incentive.**

(10) In what year did you purchase the table saw?

- a) 2009
- b) 2010
- c) 2011
- d) 2012
- e) 2013
- f) 2014
- g) 2015
- h) Other: _____ **Interviewer: Terminate interview. Inform the respondent that the \$50 incentive is not provided for incomplete interviews.**
- i) Don't know/Refused

I did not purchase it (gift, barter).....YES → **Ask the year received.**

YEAR RECEIVED

If it is before 2009 → **Terminate interview. They do not qualify for the study. They will not receive the \$50 incentive.**

If it is in/after 2009 → **GO TO Q11**

(11) Was the table saw new or used when you purchased/received it?

- a) New, → **Skip to Q 13**
- b) Used → **Go to next (Q 12)**
- c) Don't know/Refused, → **Skip to Q 13**

(12) About how old was your saw when you purchased/received it?

- a) Less than 1 year
- b) 1 year
- c) 2 years
- d) 3 years
- e) 4 years
- f) 5 years
- g) 6 years
- h) Over 6 years
- i) Other: _____
- j) Don't know/refused

If the purchase year and the age of table saw combination is less than 2009, end survey.
[Ex: Bought it in 2010, it was used and it was 4 years old= most likely a 2006 model.] →
Terminate interview. They do not qualify for the study. They will not receive the \$50
incentive.

(13) **Interviewer:**

IF respondent purchased their saw NEW, read: "Approximately, how much did the table saw cost?" _____

IF respondent purchased their saw USED, read: "Approximately, how much did the table saw cost when it was new?" _____

Interviewer: If exact cost is unknown, try to get an estimate. Provide respondents with cost range categories.

- a) Under \$100
- b) \$100- \$199
- c) \$200- \$499
- d) \$500- \$999
- e) \$1,000 - \$5,000
- f) Over \$5,000
- g) Other: _____
- h) Don't know/Refused

IV. Table Saw Use

(14) When was the last time you used the saw? Was it ... **[Interviewer: Read categories, begin at the most recent and stop at first "yes." Do not read "Don't know."]**

- a) Within the last 30 days
- b) Within the last 6 months

- c) Within the last year
- d) Within the last two years
- e) Within the last three years
- f) Other _____
- g) Don't know/Refused

(15) How often do you use your table saw? Are you using it ... **[Interviewer read categories, begin at the most frequent and stop at first "yes." Do not read "Don't know."]**

- a) Every day
- b) 2-3 times a week
- c) Every week
- d) 1 to 3 times per month
- e) Less than once a month, but more than twice a year
- f) 2 times per year or less
- g) Other: _____
- h) Don't know/Refused

(16) About how much time do you spend during a typical session when using your table saw? Are you using it ... **[Interviewer read categories, begin at the shortest length of time and go up and stop at first "yes." Do not read "Don't know."]**

- a) Less than 30 minutes
- b) 30 minutes to less than 1 hour
- c) 1 hour
- d) 1-2 hours
- e) 3-4 hours
- f) More than four hours
- g) Other: _____
- h) Don't know/Refused

V. Blade Guard Use

(17) When you bought or received your table saw did it come with the blade guard installed?
Do not read the choices aloud. Mark the appropriate choice.

- a) Yes, →**Skip to Q 20**
- b) No, it required installation →**Go to next (Q 18)**
- c) Don't know, →**Skip to Q 20**

(18) After you purchased or received your table saw, when did you install the blade guard?

- a) I installed it before using it the first time, →**Skip to Q 20**
- b) I installed it but only after using it first
- c) It has not yet been installed
- d) Other_____, →**Skip to Q 20**
- e) Don't know/Refused, →**Skip to Q 20**

(19) What was the reason why you operated the table saw without initially installing the blade guard?

(20) Which of the following best describes the current condition of your blade guard?

- a) It is in good condition, with no parts missing
- b) It is generally in good condition, but some parts are missing
- c) It is damaged but usable
- d) It is damaged and not usable,
- e) Something else? *Please specify* _____
- f) Don't know/Refused

(21) Do you know of any circumstances that require the blade guard to be removed?

- a. Yes, *Please describe* _____
- b. No

(22) I am going to read a list of reasons why someone might operate a table saw without using a blade guard. Thinking of the times you have operated your current table saw, for which of the following reasons was the blade guard ever removed or positioned out of the way? Because it... **INTERVIEWER: Read each option and wait for the respondent to answer yes or no for each option.**

		Yes	No	Don't know	
a.	Slows down cutting				
b.	Makes it harder to keep the table saw clear of saw dust				
c.	Makes cutting more difficult or awkward				
d.	Makes cutting less precise or lower in quality				
e.	Blocks my view of the wood while cutting				
f.	Blocks the lighting on the wood while cutting				
g.	Makes it harder to control the wood while cutting				
h.	It makes feeding the wood into the saw more difficult				
i.	Some cuts are difficult or impossible with the blade guard in place				→If yes, Go to Q 23 (next)
j.	Are there any other reasons why you removed the blade guard?				If yes, please elaborate: _____

Interviewer Note: If response to “i,” is “No” or “Don’t know”, skip Q23 and go to Q24.

- (23) You indicated that you remove the blade guard for certain types of cuts. For which types of cuts do you have to remove the blade guard?

INTERVIEWER: This is an open-end question. Possible answers include non-through cuts, dado, rabbet, dovetail, recesses, grooves, notches, etc.

Please describe _____

- (24b) **Interviewer Note:** Read the following definition to all respondents:

A through-cut is any cutting operation where the height of the saw blade is higher than the height of the wood being cut. The blade cuts the wood into two pieces.

Have you ever removed the blade guard for a through-cut?

- a) Yes, **If yes, Ask:** Why did you remove the blade guard? _____
- b) No
- c) Don't know/Refused

- (24c) **Interviewer Note:** Read the following definition to all respondents:

A non-through cut is any cutting operation where the height of the saw blade is lower than the height of the wood being cut. The blade cuts into, but not all the way through, the wood. The blade cuts a groove or channel in the wood that is the same thickness of the blade.

Have you ever removed the blade guard for non-through cuts?

- a) Yes, **If yes, Ask:** Why did you remove the blade guard? _____
- b) No
- c) Don't know/Refused

- (24d) Thinking about all the times you have operated your current table saw, how often do you perform non-through cuts?

Interviewer, repeat the definition of non-through cut, if needed: A non-through cut is any cutting operation where the height of the saw blade is lower than the height of the wood being cut. The blade cuts into, but not all the way through, the wood. The blade cuts a groove or channel in the wood that is the same thickness of the blade.

- a) Always
- b) Often
- c) Sometimes
- d) Rarely
- e) Never
- f) Don't know/Refused

- (24) Thinking about all the times you have operated your current table saw, how often did you operate the table saw with the blade guard removed or positioned out of the way of the cut for any reason?

Interviewer: Read all the choices except don't know, before obtaining the respondent's answer.

- a) Always
- b) Often
- c) Sometimes
- d) Rarely
- e) Never (**If 24b = No, 24c = No, and 24d = Never, skip to Q 27**)
- f) Don't know/Refused

- (25) **Interviewer Note: Read choices a-e before obtaining a response.**

After you remove the blade guard regardless of whether it for through or non-through cut, when do you typically re-install the blade guard?

- a) After finishing the task for which it was removed,
- b) The next time you use the saw,
- c) The next cut that can be done with the blade guard,
- d) Some other time → **Go to Q26**
- e) Never
- f) Don't know/Refused,

Interviewer: Unless otherwise noted, skip to Q 27.

- (26) When is that, typically? _____ **Interviewer: Gain as much detail as possible. If needed, follow-up and ask:**

Please describe when you return the blade guard to use. _____

- (27) When the table saw is not in use, where is your blade guard typically stored?

- a) On the saw, mounted in place over the saw blade.
- b) Near the saw, but not mounted on the saw (This includes anywhere in the workshop, but not mounted over the saw blade.)
- c) In some other location. Where? _____
- d) Don't know/Refused

VI. Table Saw Experience

(28) Which of the following best describes your level of expertise using table saws: casual user, hobbyist, regular user, semiprofessional, or professional?

- a) Casual user / Hobbyist
- b) Semiprofessional
- c) Professional
- d) Don't know/Refused

(29) On a scale from 1 to 7, where 1 is the lowest skill level and 7 is the highest, how would you assess your table saw skills level?

1 2 3 4 5 6 7

(30) How many years have you been using table saws?

(31) Have you ever used a traditional blade guard with a table saw?

Interviewer: If needed, remind the respondent of the difference between a traditional blade guard system and the modular blade guard system. A traditional blade guard has a single-piece hood resting over the saw blade. A modular blade guard system, also called dual guard system, has two sections that operate independently on either side of the blade.

- a) Yes → **Go to Q32**
- b) No → **Skip to Q34**
- c) Don't know/Refused → **Skip to Q34**

(32) Please compare your use of the modular blade guard to your use of traditional blade guard. Have you used the modular blade guard more or less frequently, or about the same as the traditional blade guard?

- a) More frequently
- b) Less frequently
- c) About the same
- d) Don't know/Refused

(33) Assuming identical saws, do you prefer using a table saw with a modular blade guard, a traditional hood blade guard, or no blade guard?

- a) Modular blade guard
- b) Traditional blade guard
- c) No blade guard
- d) Don't know/Refused

(34) Is there anything else you would like to add about your experience with modular blade guards?

VII. Safety attitudes

(35) Based on your own personal experience, how dangerous do you consider working with a table saw to be?

- a) Not at all dangerous
- b) Slightly dangerous
- c) Moderately dangerous
- d) Very dangerous
- e) Don't know/Refused

(36) In your opinion, to what extent does using the modular blade guard prevents hazards associated with operating a table saw?

- a) Not at all
- b) A small extent
- c) A moderate extent
- d) A large extent
- e) Don't know/Refused

VIII. Incentive Verification

Thank you for your time. Your answers will help identify modular blade guard use patterns and will be used to help to reduce injuries on table saws.

As appreciation for your time, we would like to send you a check for \$50. Could you please provide your full name and mailing address?

Interviewer: Fill in the blank with the respondent's name and address, and verify it. If needed, assure the respondent of the confidentiality of the information provided.

You will receive your participation check in the mail in the next few weeks.

Interview Termination script:

Thank you for your interest in our survey. Unfortunately, you are not qualified for this study.

Thank you for your time.

Interviewer: Read only if R asks: Since you did not complete the survey you are not eligible for the \$50 incentive.

7. Appendix B. Additional Results

Table 5. Blade Guard Removal Frequency by Manufacturer

Manufacturer	Blade Guard Removal Frequency				
	Always	Often	Sometimes	Rarely	Never
DeWalt (n=34)	9%	24%	26%	15%	26%
Craftsman (n=27)	19%	4%	22%	44%	11%
SawStop (n=23)	9%	13%	35%	39%	4%
Bosch (n=23)	26%	17%	35%	13%	9%
Ridgid (n=21)	10%	29%	19%	29%	14%
Ryobi (n=10)	0%	10%	20%	30%	40%
Delta (n=9)	0%	33%	56%	0%	11%
Porter-Cable (n=9)	22%	11%	11%	22%	33%
Other (n=44)	18%	14%	27%	27%	14%

Table 6. Reported Circumstances that Require Blade Guard Removed by Manufacturer

Manufacturer	Blade Guard Removal			
	Yes, circumstances required to remove blade guard		No, circumstances required to remove blade guard	
	n	%	n	%
DeWalt (n=34)	26	76%	8	24%
Craftsman (n=27)	24	89%	3	11%
SawStop (n=23)	22	96%	1	4%
Bosch (n=23)	20	87%	3	13%
Ridgid (n=21)	18	86%	3	14%
Ryobi (n=10)	6	60%	4	40%
Delta (n=9)	8	89%	1	11%
Porter-Cable (n=9)	5	56%	4	44%
Other (n=44)	31	70%	13	30%

Table 7. Blade Guard Removal for Through Cut by Manufacturer

Manufacturer	Blade Guard Removal			
	Yes, blade guard removed for through cut		No, blade guard not removed for through cut	
	n	%	n	%
DeWalt (n=34)	14	41%	18	53%
Craftsman (n=27)	12	44%	15	56%
SawStop (n=23)	15	65%	7	30%
Bosch (n=23)	11	48%	12	52%
Ridgid (n=21)	5	24%	15	71%
Ryobi (n=10)	5	50%	5	50%
Delta (n=9)	3	33%	6	67%
Porter-Cable (n=9)	3	33%	5	56%
Other (n=44)	17	39%	27	61%

*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Table 8. Blade Guard Removal for Non-Through Cut by Manufacturer

Manufacturer	Blade Guard Removal			
	Yes, blade guard removed for non-through cut		No, blade guard not removed for non-through cut	
	n	%	n	%
DeWalt (n=34)	18	53%	16	47%
Craftsman (n=27)	15	56%	11	41%
SawStop (n=23)	21	91%	2	9%
Bosch (n=23)	10	43%	12	52%
Ridgid (n=21)	14	67%	7	33%
Ryobi (n=10)	2	20%	8	80%
Delta (n=9)	7	78%	2	22%
Porter-Cable (n=9)	3	33%	6	67%
Other (n=44)	24	55%	20	45%

*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

Table 9. How Often Blade Guard Removed by Table Saw Type

Type of Table Saw	How Often Blade Guard Removed				
	Always	Often	Sometimes	Rarely	Never
Portable bench saw (n=99)	12%	12%	26%	25%	24%
Contractor saw (n=56)	13%	23%	27%	25%	13%
Stationary/ cabinet saw (n=38)	21%	18%	29%	32%	0%
Hybrid saw (n=7)	14%	14%	43%	14%	14%

Table 10. How Often Blade Guard Removed by Table Saw Year

Table Saw Year	How Often Blade Guard removed				
	Always	Often	Sometimes	Rarely	Never
2015 (n=26)	12%	19%	42%	8%	19%
2014 (n=55)	9%	24%	29%	22%	16%
2013 (n=40)	13%	15%	33%	23%	18%
2012 (n=28)	18%	11%	25%	29%	18%
2011 (n=15)	27%	7%	7%	40%	20%
2010 (n=25)	16%	16%	20%	48%	0%
2009 (n=8)	0%	0%	25%	38%	38%

*Not shown are response options "I did not purchase it/ It was a gift" (n=2) and "Don't know/ Refused" (n=1) because of low responses

Figure 49. Reported Circumstances that Require Blade Guard Removed by Table Saw Year

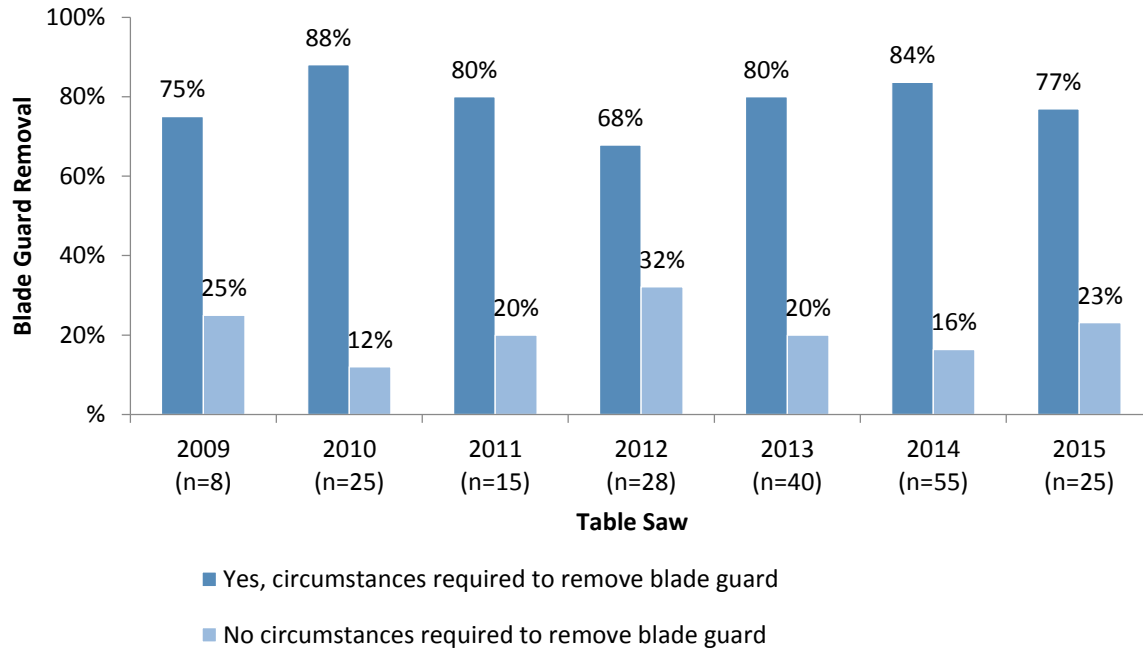
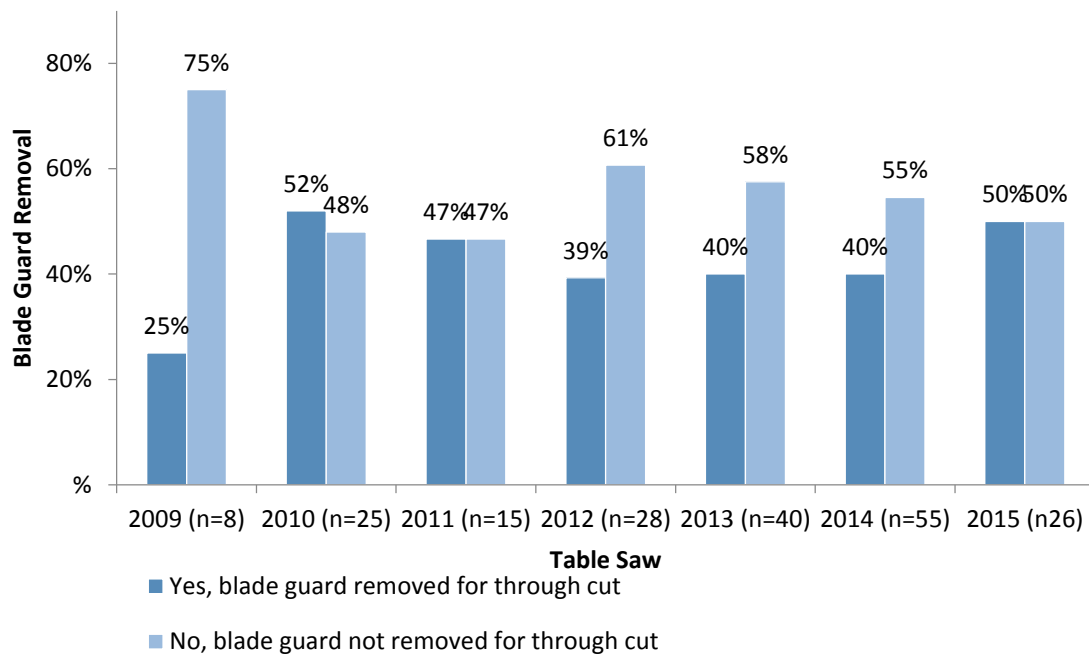
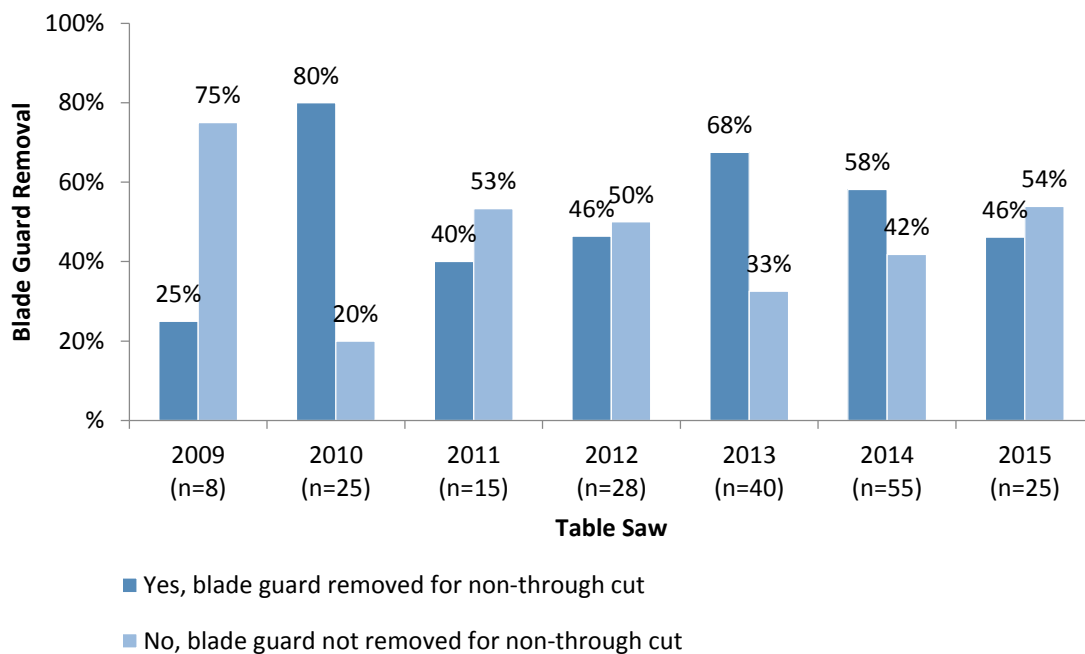


Figure 50. Blade Guard Removal for Through Cut by Table Saw Year



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Figure 51. Blade Guard Removal for Non-Through Cut by Table Saw Year



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses
 ***Significant at 0.05 level.

Figure 52. Blade Guard Removal by Last Time Saw Used

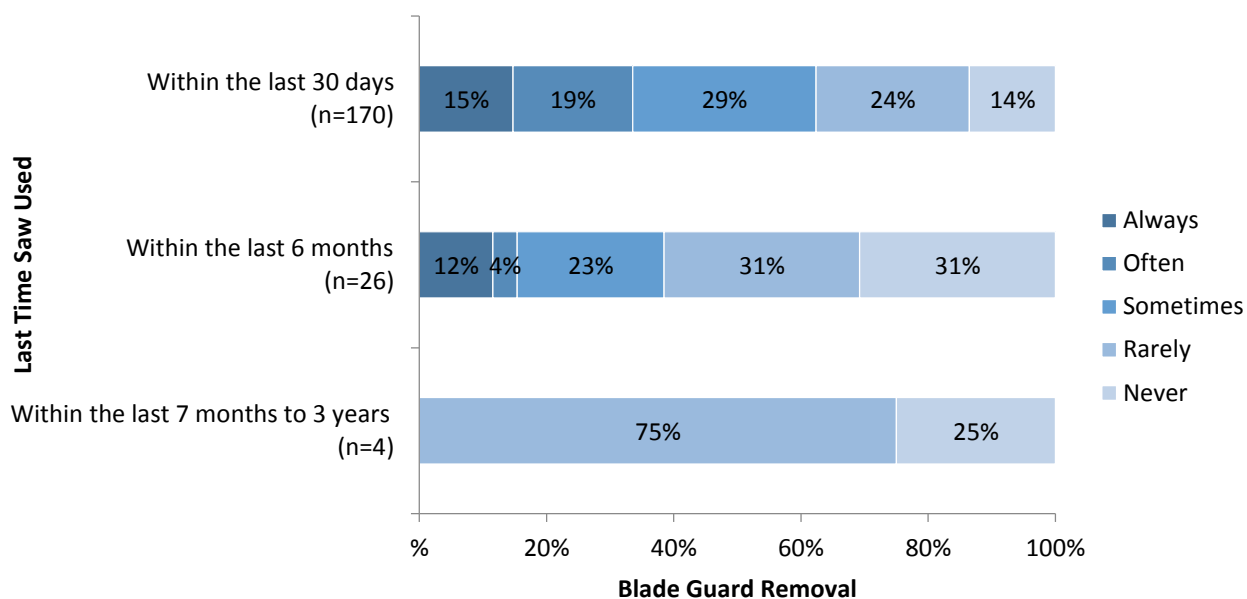
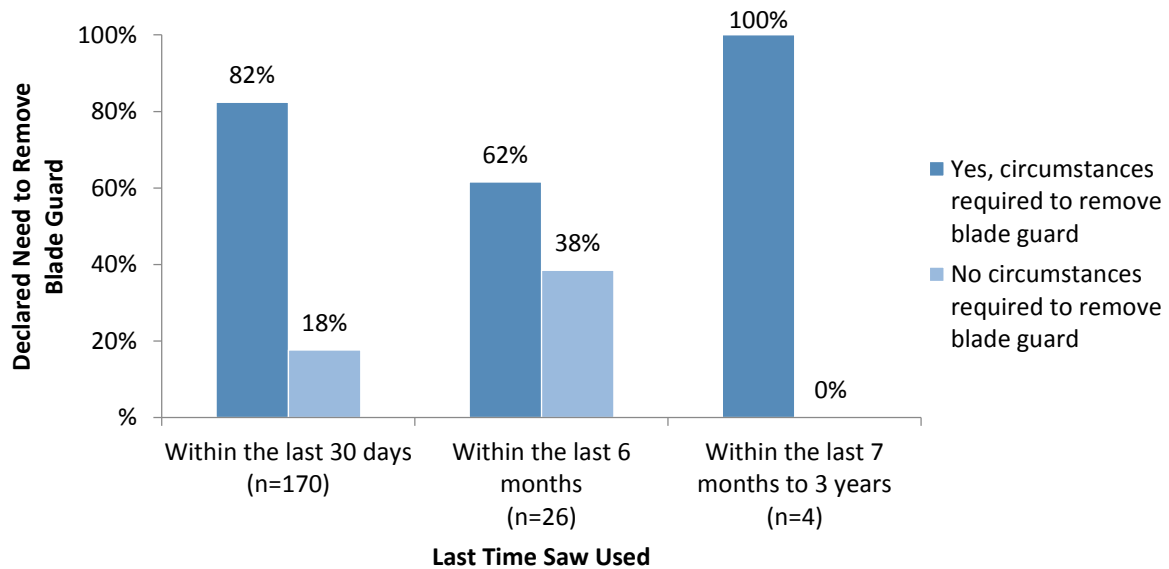
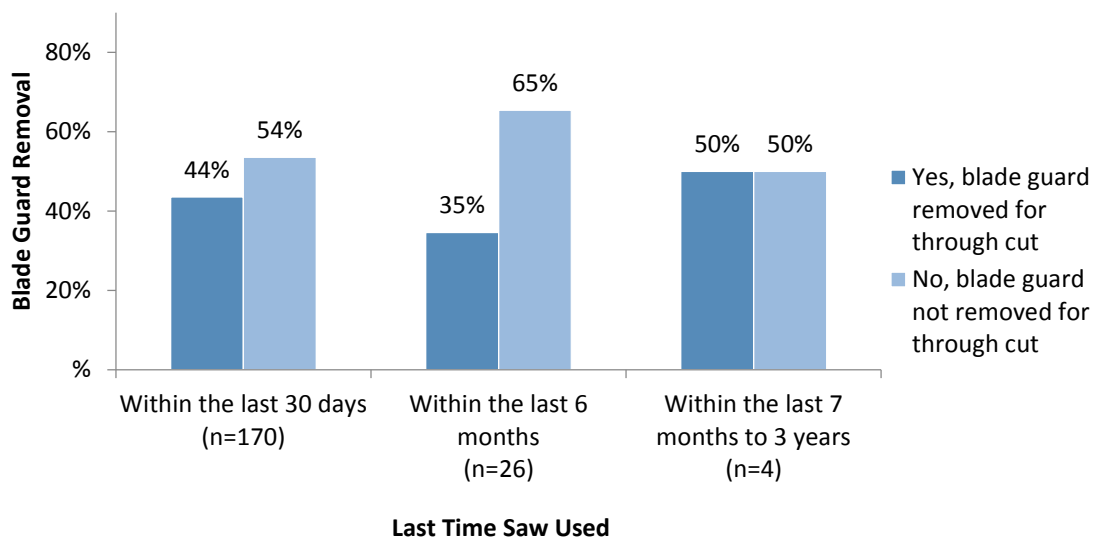


Figure 53. Reported Circumstances that Require Blade Guard Removed by Last Time Saw Used



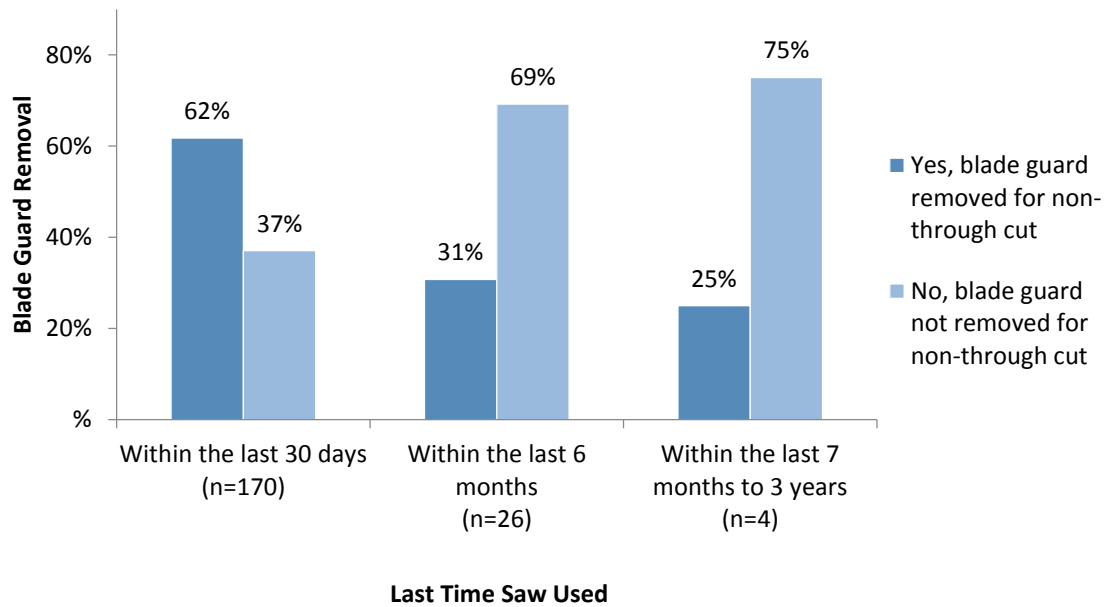
***Significant at 0.05 level.

Figure 54. Blade Guard Removal for Through Cut by Last Time Saw Used



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Figure 55. Blade Guard Removal for Non-Through Cut by Last Time Saw Used



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

Table 11. Blade Guard Removal Frequency by Table Saw Use Duration

How Often Blade Guard Removed	Duration of Table Saw Use					
	< 30 minutes (n=21)	30 minutes to < 1 hour (n=44)	1 hour (n=23)	1 – 2 hours (n=64)	3 – 4 hours (n=28)	>4 hours (n=19)
Always	29%	14%	9%	11%	11%	21%
Often	5%	14%	17%	16%	18%	32%
Sometimes	19%	25%	22%	33%	25%	37%
Rarely	29%	27%	35%	25%	29%	11%
Never	19%	20%	17%	16%	18%	0%
Total	100%	100%	100%	100%	100%	100%

Table 12. Reported Circumstances that Require Blade Guard Removed by Table Saw Use Duration

Declared Need to Remove Blade Guard	Duration of Table Saw Use					
	< 30 minutes (n=21)	30 minutes to < 1 hour (n=44)	1 hour (n=23)	1 – 2 hours (n=64)	3 – 4 hours (n=28)	>4 hours (n=19)
Yes, circumstances required to remove blade guard	81%	77%	83%	80%	71%	95%
No circumstances required to remove blade guard	19%	23%	17%	20%	29%	5%
Total	100%	100%	100%	100%	100%	100%

Table 13. Blade Guard Removal for Through Cut by Table Saw Use Duration

Blade Guard Removal	Duration of Table Saw Use					
	< 30 minutes (n=21)	30 minutes to < 1 hour (n=44)	1 hour (n=23)	1 – 2 hours (n=64)	3 – 4 hours (n=28)	>4 hours (n=19)
Yes	57%	34%	35%	42%	43%	58%
No	38%	61%	65%	56%	54%	42%
Total	100%	100%	100%	100%	100%	100%

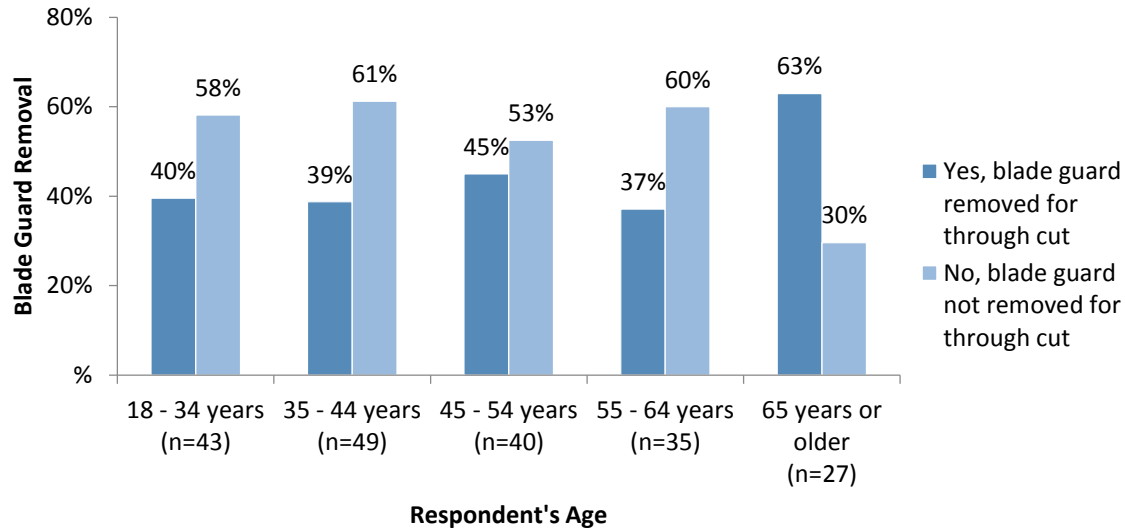
*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Table 14. Blade Guard Removal for Non-Through Cut by Table Saw Use Duration

Blade Guard Removal	Duration of Table Saw Use					
	< 30 minutes (n=21)	30 minutes to < 1 hour (n=44)	1 hour (n=23)	1 – 2 hours (n=64)	3 – 4 hours (n=28)	>4 hours (n=19)
Yes	62%	52%	74%	59%	57%	32%
No	33%	45%	26%	41%	43%	68%
Total	100%	100%	100%	100%	100%	100%

*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

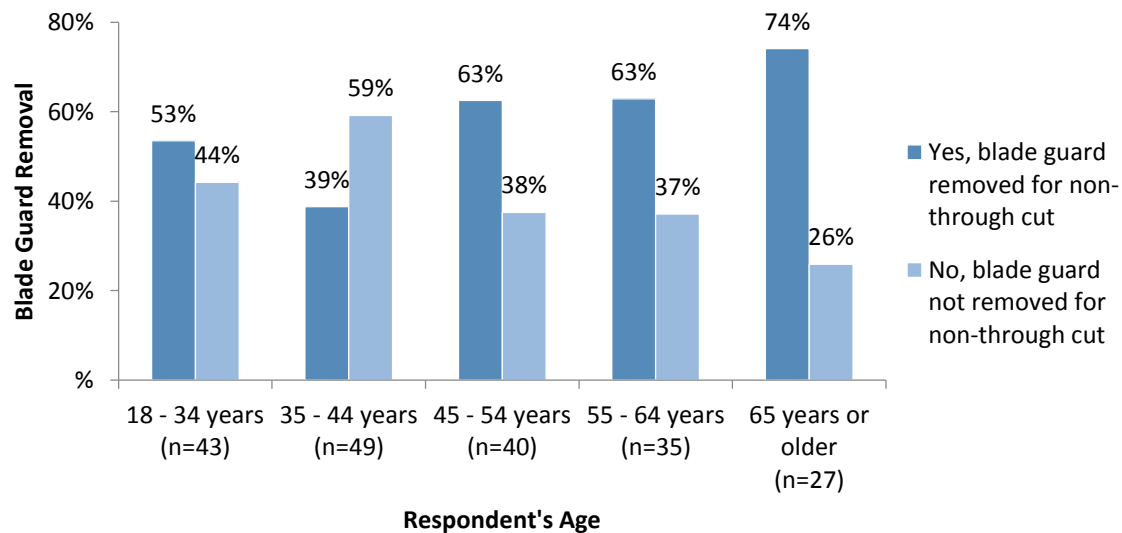
Figure 56. Blade Guard Removal for Through Cut by Respondent's Age



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

** Information about age is not available for some respondents

Figure 57. Blade Guard Removal for Non-Through Cut by Respondent's Age

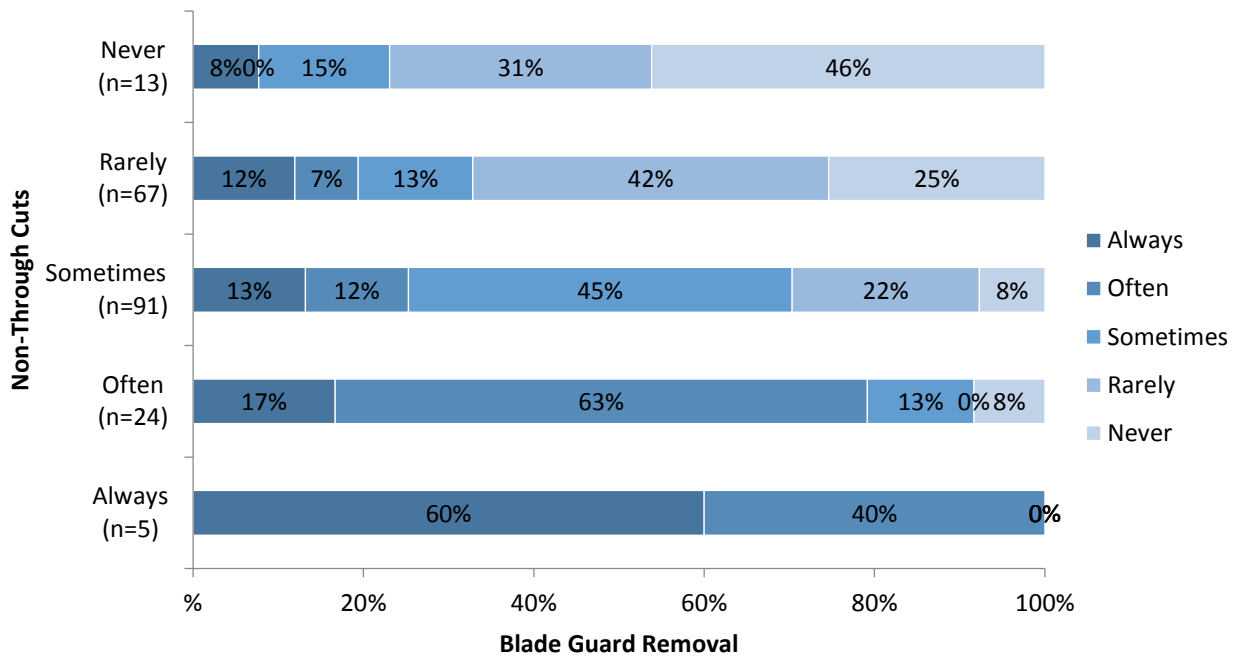


*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

**** Information about age is not available for some respondents

Figure 58. Blade Guard Removal by Frequency of Performing Non-Through Cuts



***Significant at 0.05 level.

Figure 59. Reported Circumstances that Require Blade Guard Removed by Frequency of Performing Non-Through Cuts

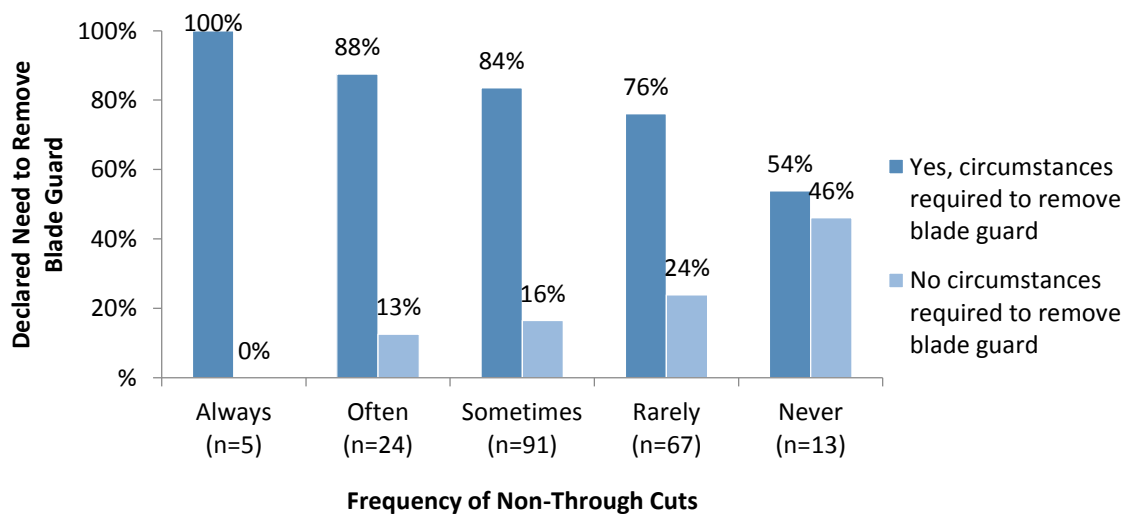
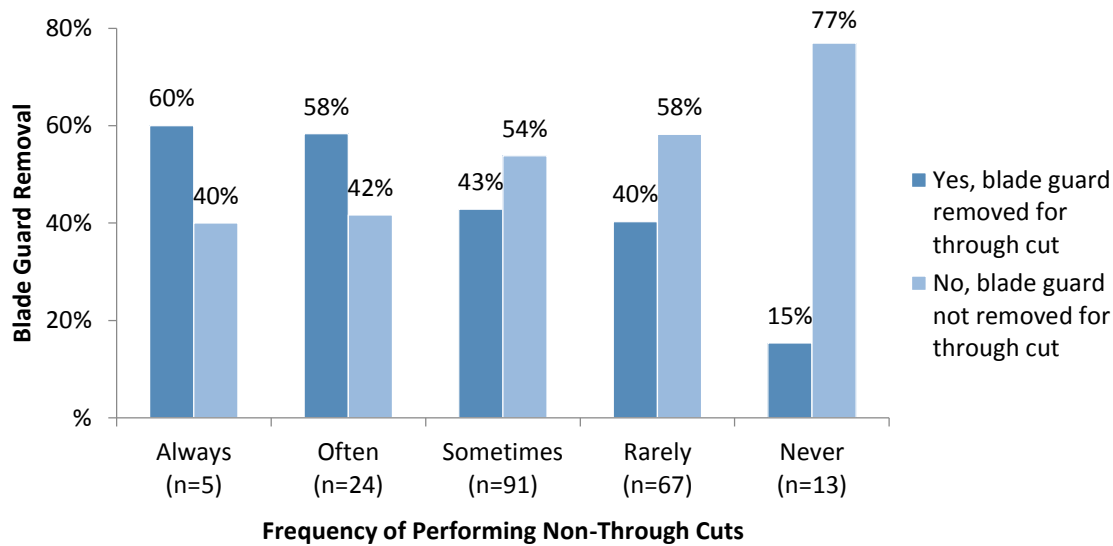
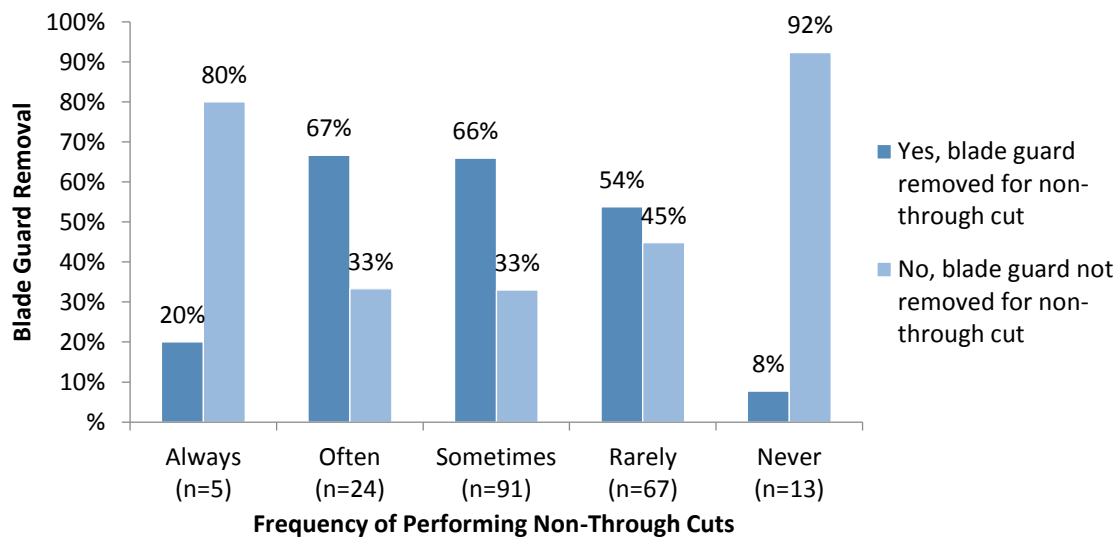


Figure 60. Blade Guard Removal for Through Cut by Frequency of Performing Non-Through Cuts



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Figure 61. Blade Guard Removal for Non-Through Cut by Frequency of performing Non-Through Cuts



*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

Table 15. Blade Guard Removal Frequency by Skill Level

Blade Guard Removal	Table Saw Skill Level					
	1 - 3		4 - 5		6 - 7	
	n	n%	n	%	n	%
Always	3	19%	14	13%	11	15%
Often	2	13%	16	14%	15	21%
Sometimes	2	13%	30	27%	23	32%
Rarely	4	25%	33	30%	15	21%
Never	5	31%	18	16%	9	12%
Total	16	100%	111	100%	73	100%

Table 16. Reported Circumstances that Require Blade Guard Removed by Respondent's Skill Level

Blade Guard Removal	Table Saw Skill Level					
	1 - 3		4 - 5		6 - 7	
	n	%	n	%	n	%
Yes, circumstances required to remove blade guard	8	50%	88	79%	64	88%
No circumstances required to remove blade guard	8	50%	23	21%	9	12%
Total	16	100%	111	100%	73	100%

Table 17. Blade Guard Removal for Through Cut by Respondent's Skill Level

Blade Guard Removal	Table Saw Skill Level					
	1 - 3		4 - 5		6 - 7	
	n	%	n	%	n	%
Yes	2	13%	51	46%	32	44%
No	13	81%	59	53%	38	52%
Total	15	100%	110	100%	72	100%

*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

***Significant at 0.05 level.

Table 18. Blade Guard Removal for Non-Through Cut by Respondent's Skill Level

Blade Guard Removal	Table Saw Skill Level					
	1 - 3		4 - 5		6 - 7	
	n	%	n	%	n	%
Yes	6	38%	60	54%	48	66%
No	9	56%	50	45%	25	34%
Total	15	100%	110	100%	73	100%

*The percentages may not equal 100 because the response option "Don't know/Refused" was removed due to low responses

Figure 62. Reported Circumstances that Require Blade Guard Removed by Respondent's Years of Experience

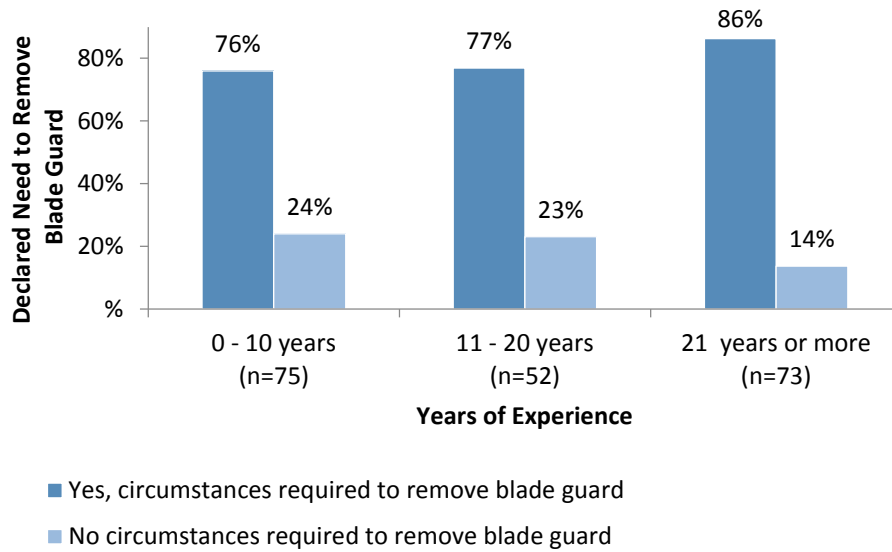


Figure 63. Reported Circumstances that Require Blade Guard Removed by Perception of Danger

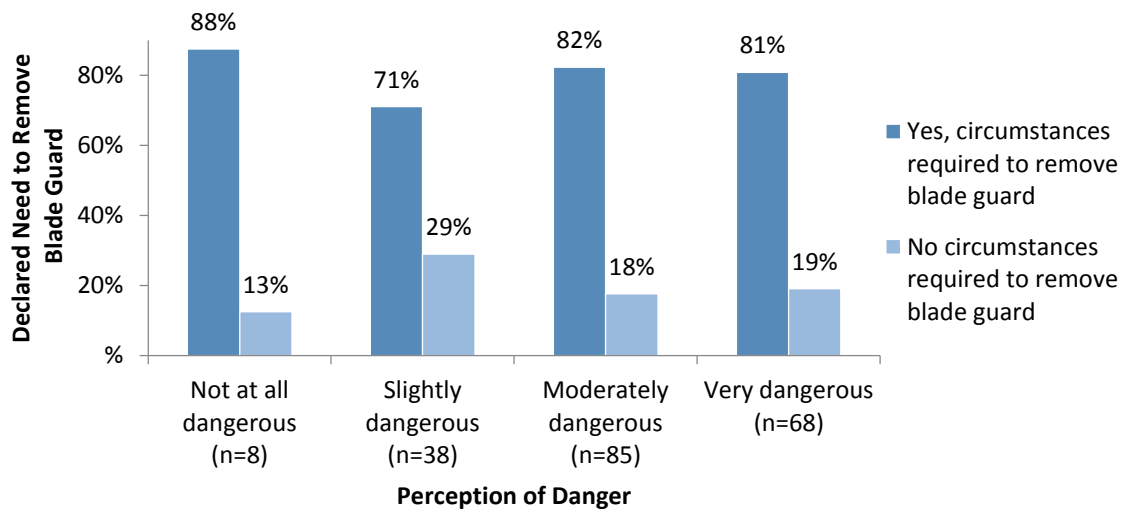


Figure 64. Blade Guard Removal for Through Cut by Perception of Danger

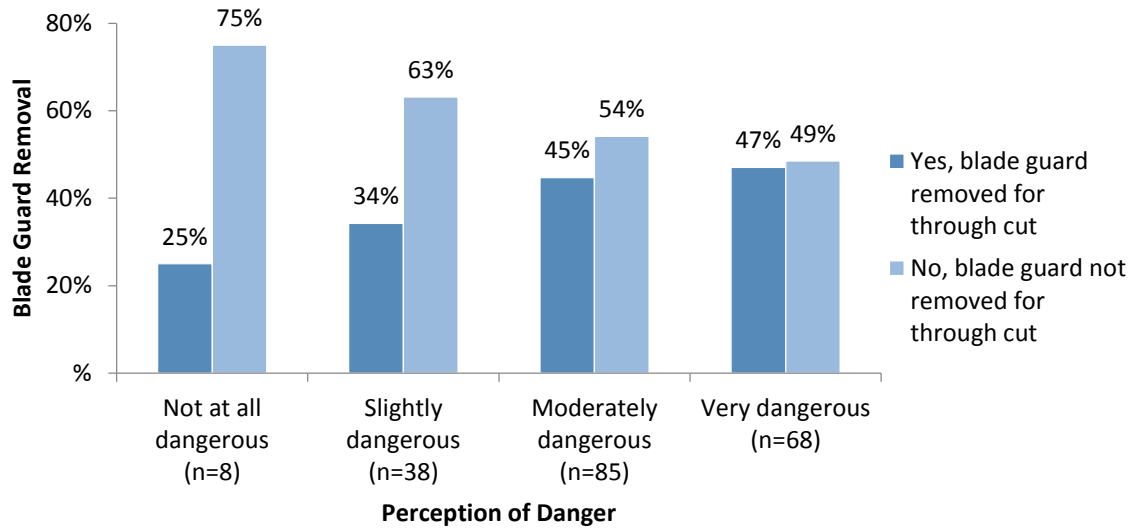


Figure 65. Blade Guard Removal for Non-Through Cut by Perception of Danger

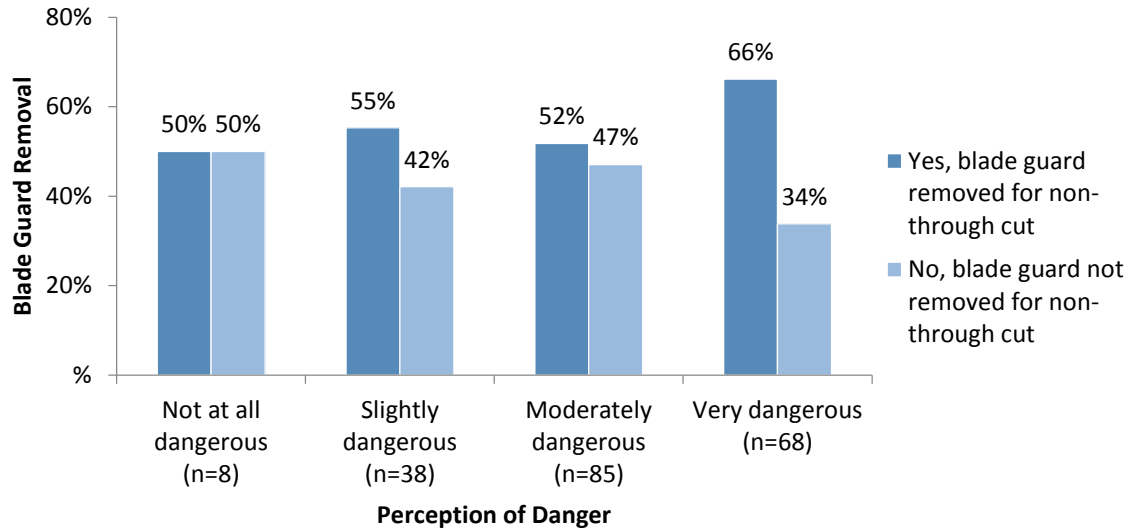
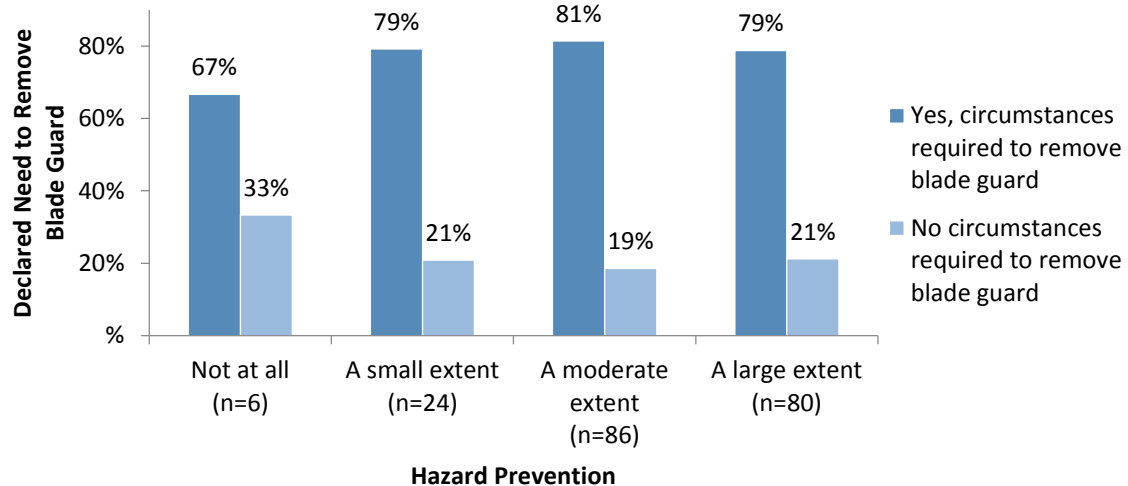


Figure 66. Reported Circumstances that Require Blade Guard Removed by Perception of Blade Guard Hazard Prevention



***Significant at 0.05 level.

Figure 67. Saw Type Usage by Years of Experience With Table Saw

