# RECOMMENDED ADVANCE NOTICE OF PROPOSED RULEMAKING FOR PERFORMANCE REQUIREMENTS TO ADDRESS TABLE SAW BLADE CONTACT INJURIES

**Hyun Kim**
**OGC**

**Caroleene Paul**
**ESME**

**September 21, 2011**

***These comments are those of the CPSC staff and have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.***

**The Petition** CP 03-2

To require performance standards for a detection and reaction system to reduce or prevent table saw blade contact injuries.

The Commission granted the petition on July 11, 2006.

The pending decision before the Commission is whether to publish an Advance Notice of Proposed Rulemaking (ANPR).

**ANPR**

- identifies the article and the risk of injury;

- summarizes regulatory alternatives; and

- invites comments or suggested standards from the public.

## Notice of Proposed Rulemaking (NPR)

Respond to comments from the ANPR and provide the text of a proposed rule along with a preliminary regulatory analysis.

## Final Rule

Finding of unreasonable risk of table saw blade contact injuries.

Performance requirements.

**Final Rule cont.**

Existing voluntary standard would not adequately reduce the risk of injury or that there would not be substantial compliance with it;

Expected benefits of such a rule bear a reasonable relationship to its costs; and

Rule poses the least burdensome requirements.

# Overview

- Product
- Injury Data
- Preliminary Injury Cost Analysis
- Voluntary Standard
- OSHA Regulation
- Evaluation of Technologies
- Conclusion
- Options and Staff Recommendation

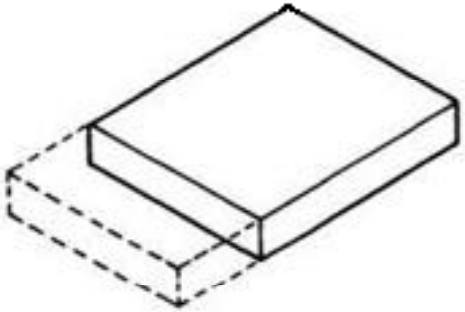
# Types of Table Saws


Bench Saw
$100 - $600
as little as 40 lbs
110 volt

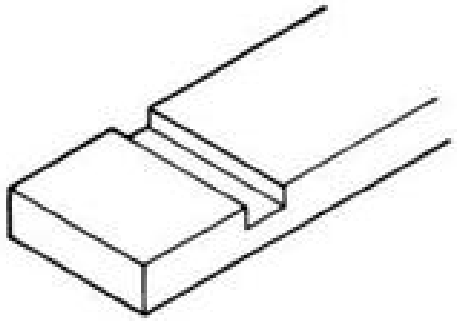
Contractor Saw
$500 - $1,800
200-300 lbs
110 -220 volt

Cabinet Saw
$1,000 - $3,000
400-800 lbs
220 volt

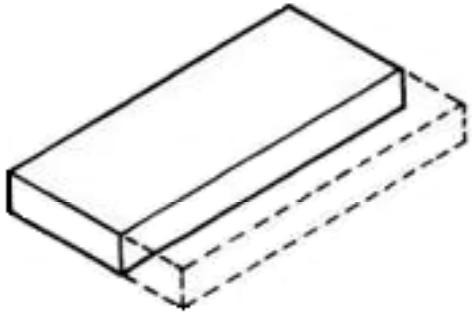
# Types of Cuts



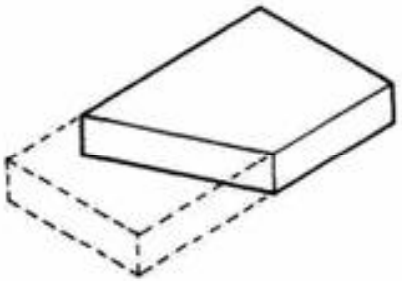
**CROSS CUT**



**NON-THROUGH CUT**

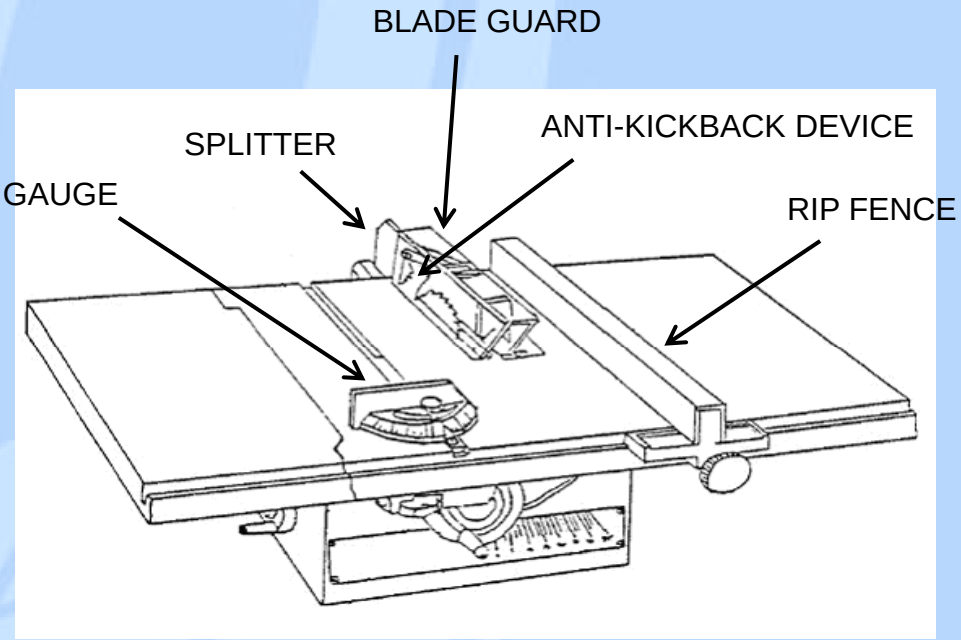


**RIP CUT**



**ANGLE/MITER CUT**

# Table Saw Components




- Miter gauge helps guide workpiece for cross cuts
- Rip fence helps guide workpiece for rip cuts
- Splitter and anti-kickback device minimize kickback
- Guard and splitter minimize contact with saw blade

# 2007-2008 NEISS Special Study

**Main objectives**:
(1) Collect in-depth information about the hazards, injuries and use of safety equipment
(2) Verify saw types in each category

**Summary:**

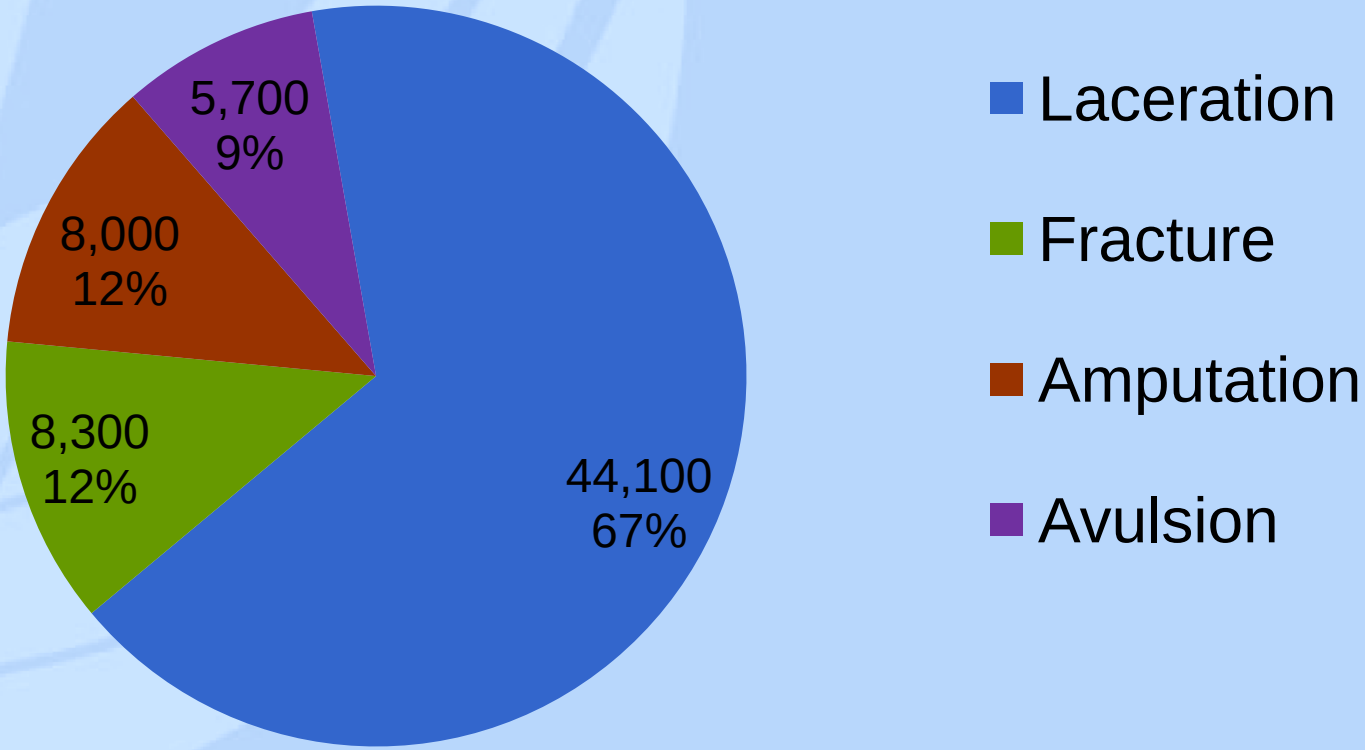
- January 1, 2007 to December 31, 2008
- 862 interviews related to table saw injuries
- Special study analysis estimates emergency department – treated injuries during 2007 and 2008
  - ➢ 76,100 associated with table saw operators
  - ➢ 66,900 of above involved blade contact with operator
- No significant change in injury trends from 2001-2008

# 2007-2008 NEISS Special Study

- **Injured Operators:**
  Male - 97%
  Average age 55.4
- **Experience of Injured Operators**
  76.7% - used saw >10 times the previous year
  4.7% - were first-time users
- **Safety Practices of Injured Operators**
  85.3% - used rip fence (majority of cuts were rip cuts)
  86.9% - wore safety goggles or eye glasses
  31.5% - used a blade guard
  65.7% - did not use blade guard (75% removed for operational convenience)

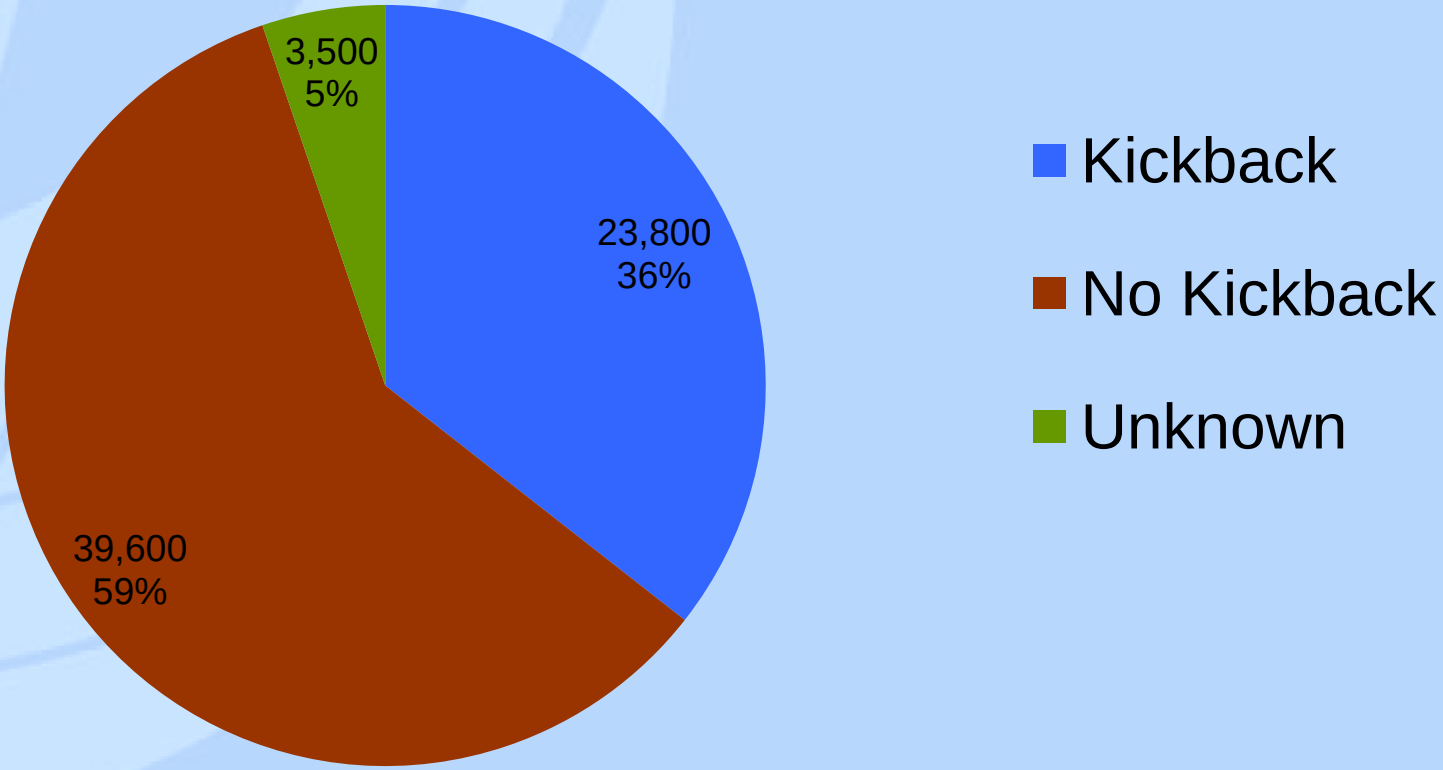
# Operator Blade Contact Injuries

## 66,900 Estimated Emergency Department-Treated Blade Contact Injuries in 2007 and 2008 per NEISS special study



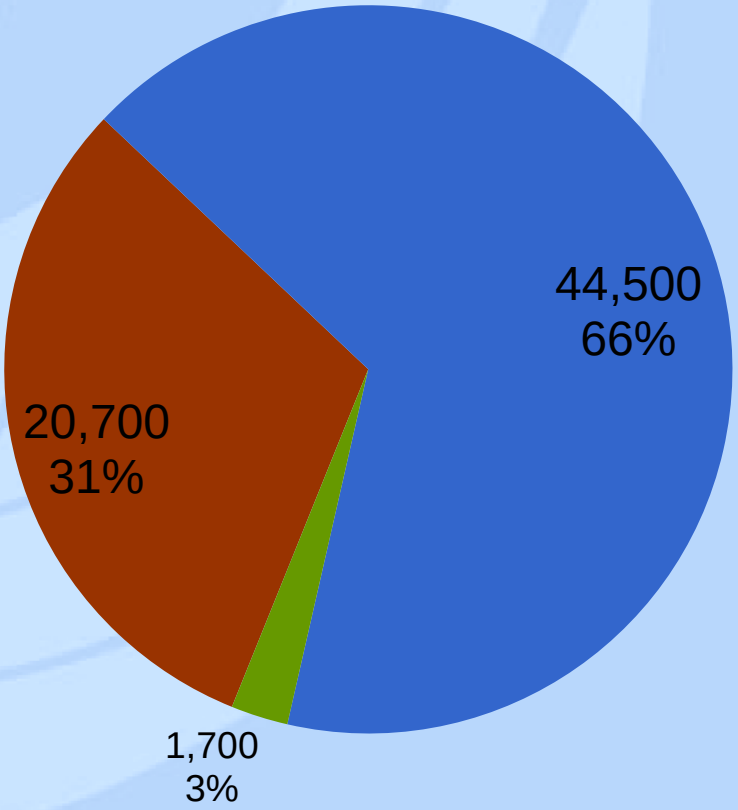
# Operator Blade Contact Injuries by Kickback Type

## 66,900 Estimated Emergency Department-Treated Blade Contact Injuries in 2007 and 2008 per NEISS special study



# Injuries and Blade Guard Use

**66,900 Estimated Emergency Department-Treated Operator Blade Contact Injuries in 2007 and 2008 per NEISS special study**



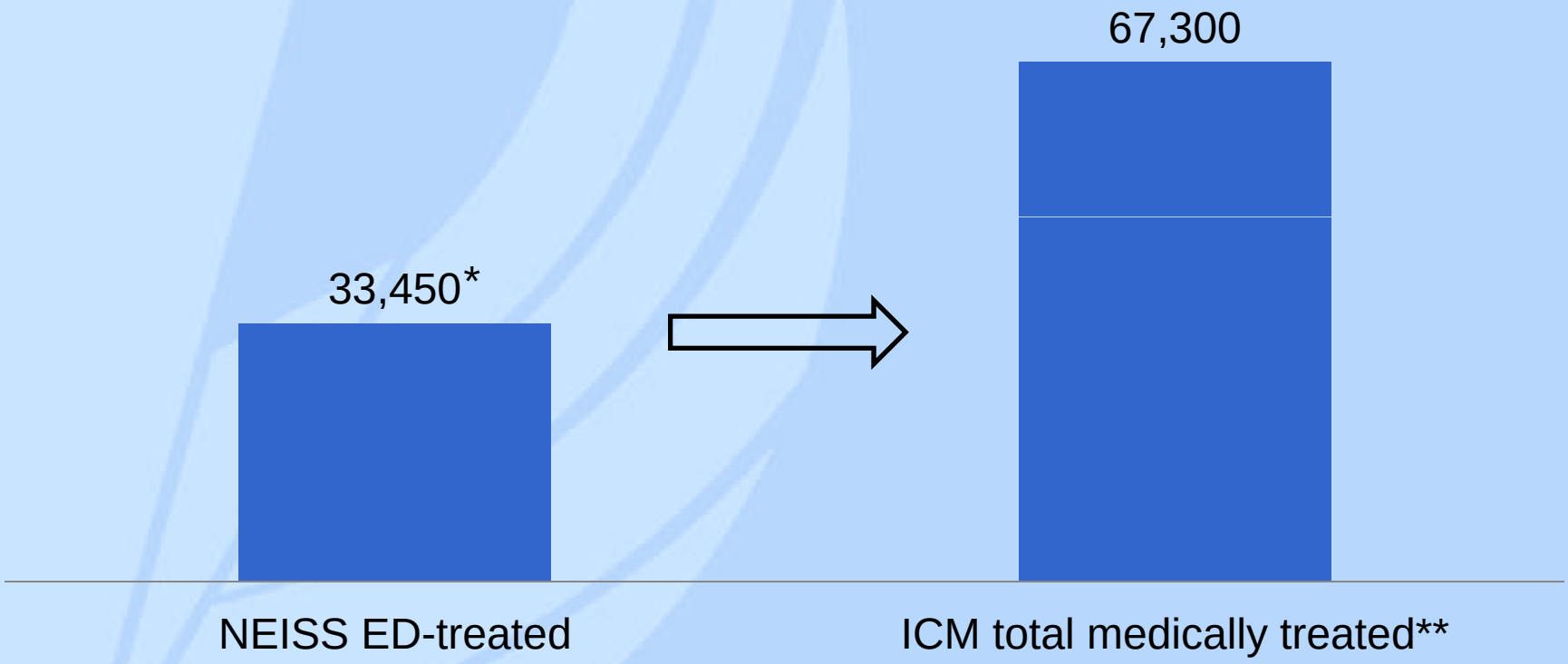

Was blade guard present?

- Yes
- No*
- Unknown

*** Most were removed for operational convenience**

# Preliminary Injury Cost Analysis

## Estimated Annual Operator Blade Contact Injuries




*** 33,450 annual** injuries based on 2 year period 2007-2008 (66,900 ÷ 2)
** Injury Cost Model (ICM) empirically derives injuries treated in other settings such as clinics and doctors' offices

# Preliminary Injury Cost Analysis

67,300 **annua**l total operator blade contact injuries

ICM cost estimates:

(1) medical treatment costs
(2) time from work losses
(3) product liability and litigation
(4) pain and suffering

**$35,000 average societal cost per blade contact injury per year**

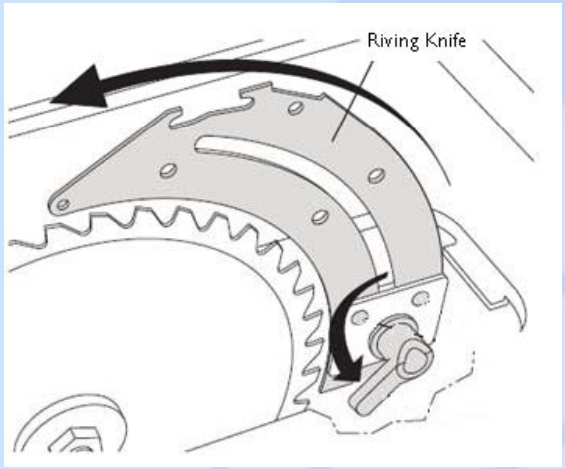
# Voluntary Standard Activities

| | |
|---|---|
| OCT 1998 | CPSC staff presented data and concerns over table saw blade contact injuries to Underwriters Laboratories (UL) at Industry Advisory Council (IAC) meeting. |
| NOV 2003 | Proposal for detection/reaction system to address blade contact injuries was presented by petitioners at Standards Technical Panel (STP) meeting. |
| NOV 2007 | 7th Edition of UL 987 introduced requirements for modular blade guard. |
| JAN 2010 | Effective date for modular blade guard requirements in UL 987. |

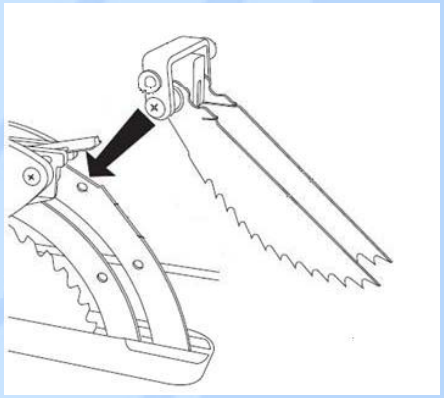
# Current Voluntary Standard

## 7th Edition UL 987 Stationary and Fixed Electric Tools

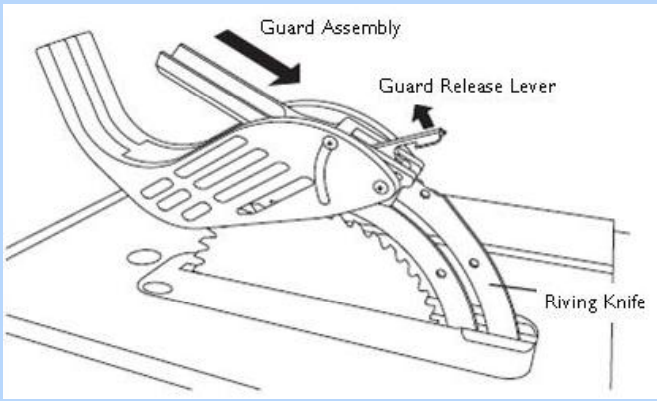
Published November 2007




Permanent Riving Knife



Anti-kickback Device




Modular Blade Guard

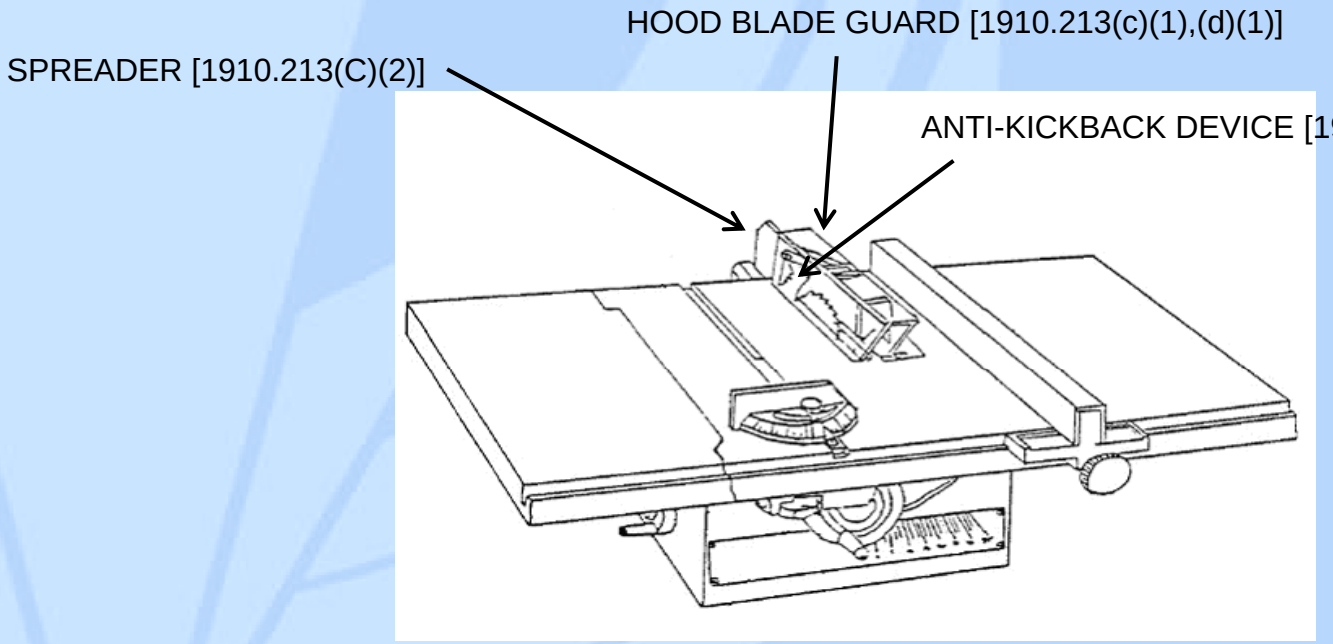
Reduce kickback and rear contact with blade
Effective date 2008 (new product) and 2014 (current product)

Prevent contact with blade
Available 2007
Effective date 2010

# OSHA Regulations

## Occupational Safety and Health Administration (OSHA)

### 29 CFR 1910.213 Woodworking Machinery Requirements

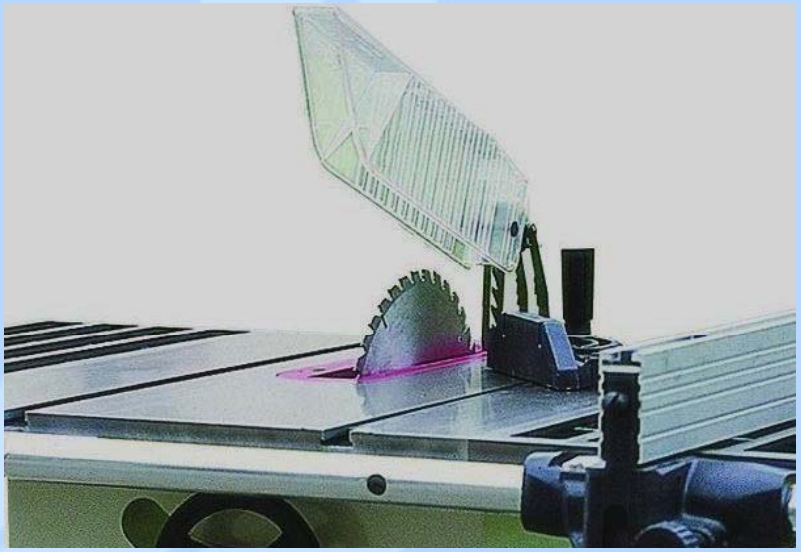



PUSH STICK [1910.213(S)(9)]

- Systems approach – workshop, protective equipment, etc.
- Outreach, training, mandatory standards
- Enforcement – employers subject to inspection and fines

# Evaluation of Technologies

Event Prevention: Traditional Blade Guard



- 1st Edition of UL 987 in 1971
- Poor visibility
- Removal of guard removes all protection
- Must remove guard for non-through cuts
- Effectiveness depends on user using guard when appropriate for cut

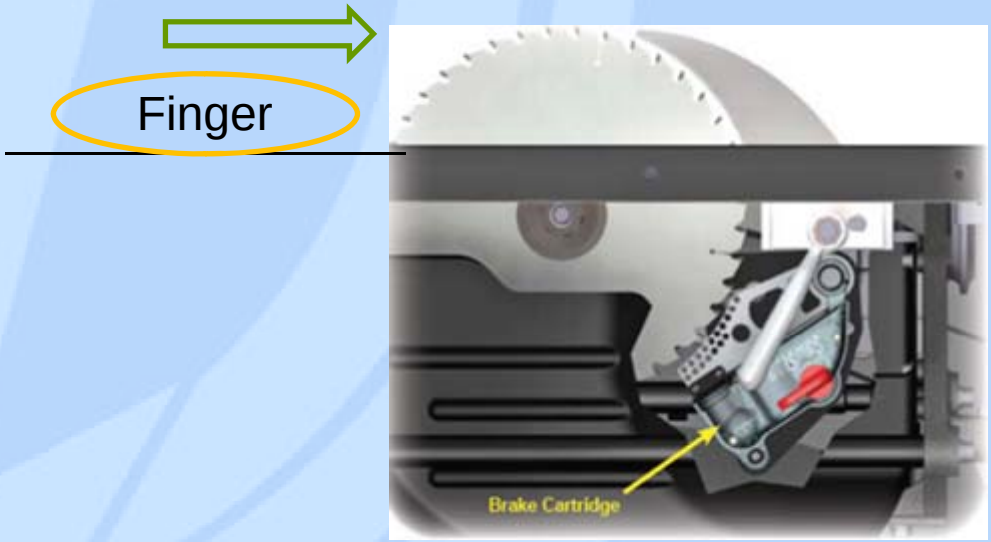
# Evaluation of Technologies

Event Prevention:  Modular Blade Guard

- 7th Edition of UL 987
- Visibility improved
- Permanent riving knife
- Must remove guard for non-through cuts
- Effectiveness depends on user using guard when appropriate for cut

# Detection and Reaction System

Event Mitigation:  Detection and Reaction System




- Intended to be used with blade guard
- Only such technology currently available on market
- Detects skin contact and stops/retracts blade in milliseconds
- Does not interfere with majority of cuts and invisible to user
- Not in UL standard but cabinet saw available on market since 2005, contractor saw available since 2008

# Conclusions

**CPSC staff believes OSHA regulations:**

- Are a systems approach to table saw safety that is not applicable to home woodworking environment
- Are not up to date with latest edition of UL 987

**CPSC staff believes the latest UL requirements:**

- do not prevent all incidents where the blade guard was on the table saw
- require a blade guard that is an improvement to old guard design but still subject to guarding technology limitations:
  - ➢ do not prevent front approach blade contact
  - ➢ must be removed for non-through cuts

# Options and Staff Recommendation

## Commission Options:

- Publish the ANPR, as drafted by the Office of the General Counsel.
- Publish the ANPR with changes, as directed by the Commission.
- Do not publish the ANPR.
- Consider other options, as directed by the Commission.

## Staff Recommendation:

Publish the ANPR, as drafted by the Office of the General Counsel.