

Biological Safety Cabinet Data Analyses: Are Annual Certifications Needed?

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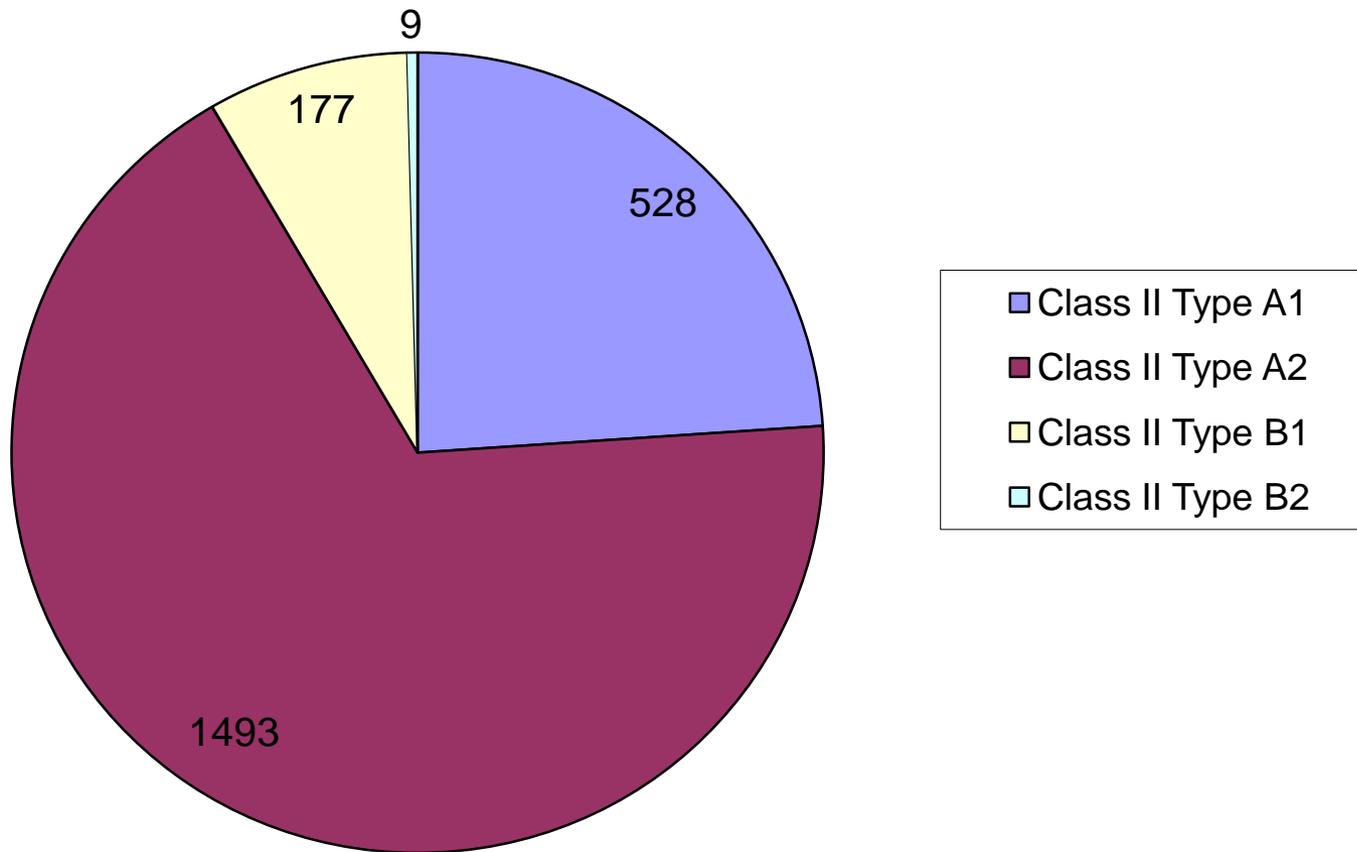
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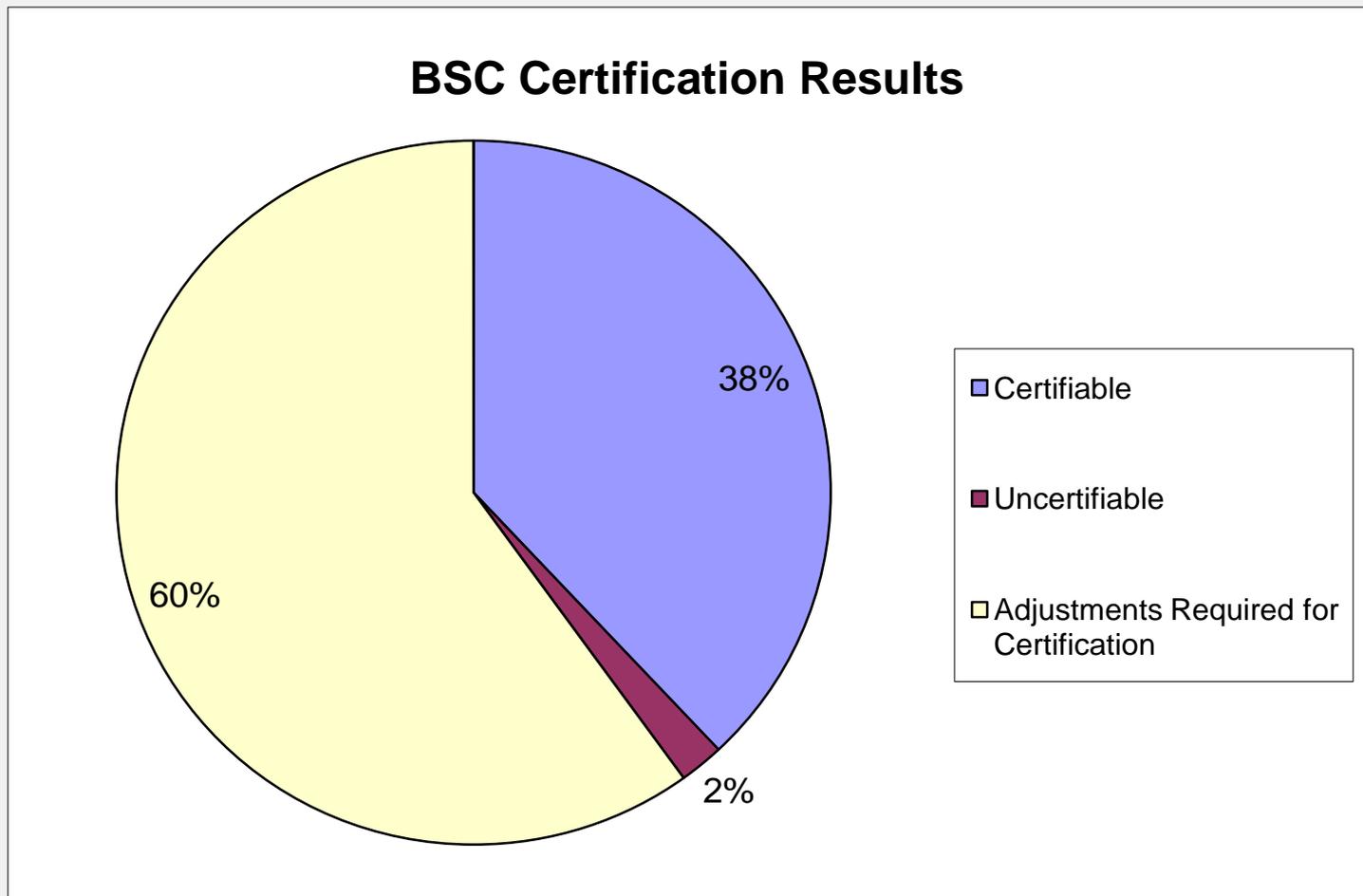
Distribution of Biological Safety Cabinets 2005-2010



- **Parameters tested include:**
 - Inflow velocity
 - Downflow velocity
 - HEPA filter integrity
 - HEPA filter loading (pressure drop)
 - Smoke patterns
 - Electrical safety
 - Installation site assessment

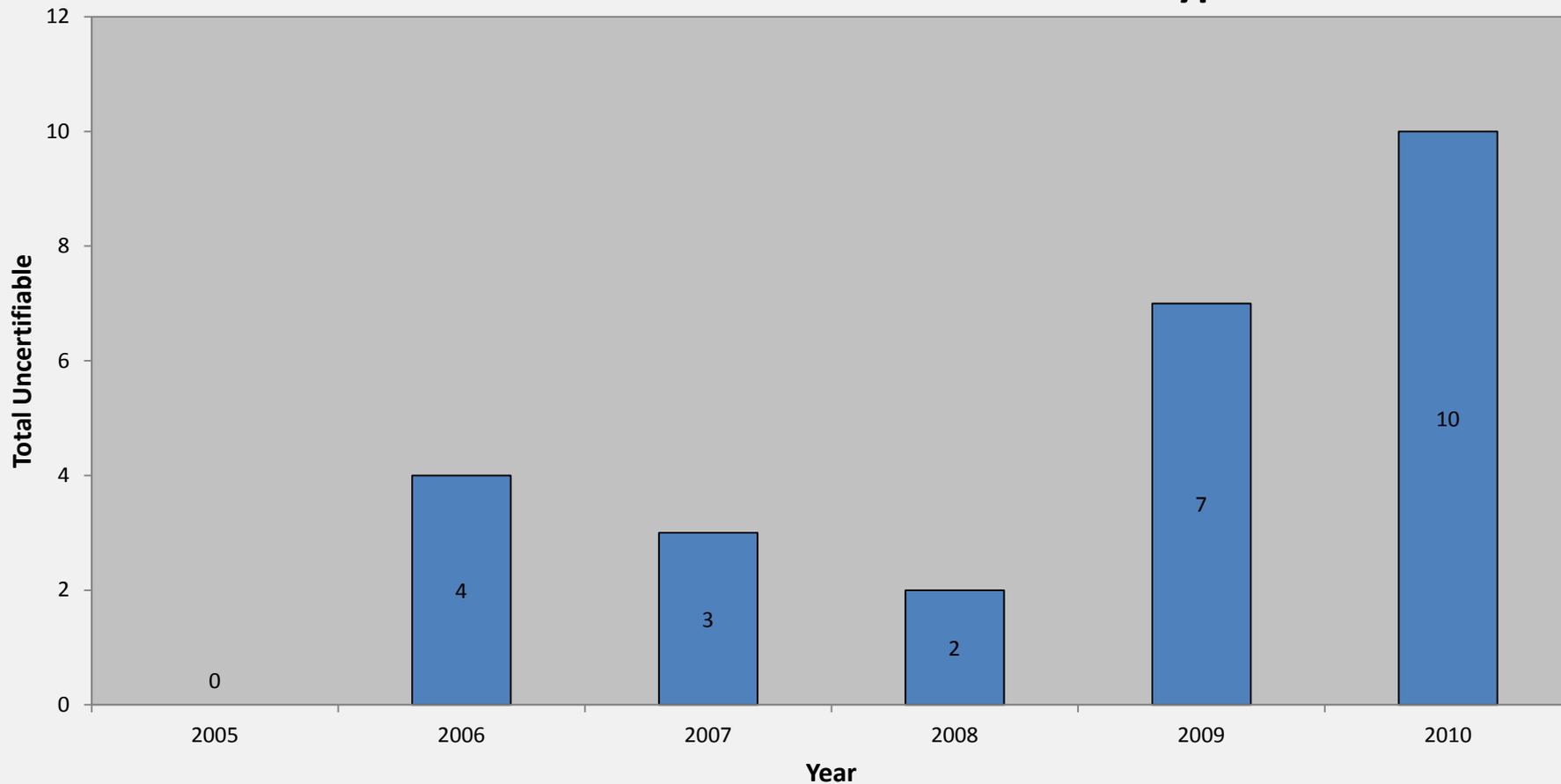
BSC Certifications 2005-2010

10,380 BSC certifications were performed from 2005-2010



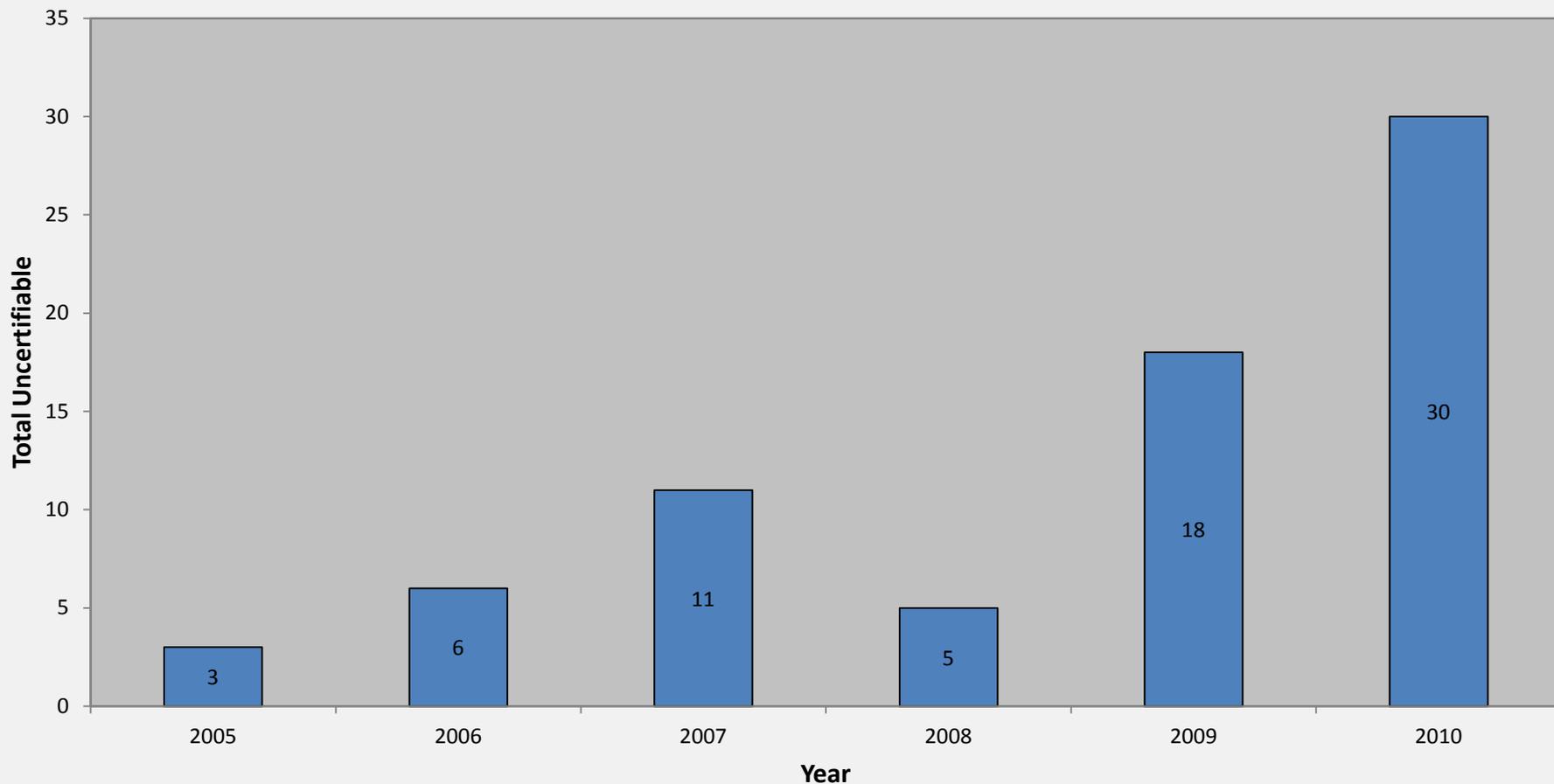
Certification Failures from 2005-2010

Total Certification Failures Each Year Class II Type A1



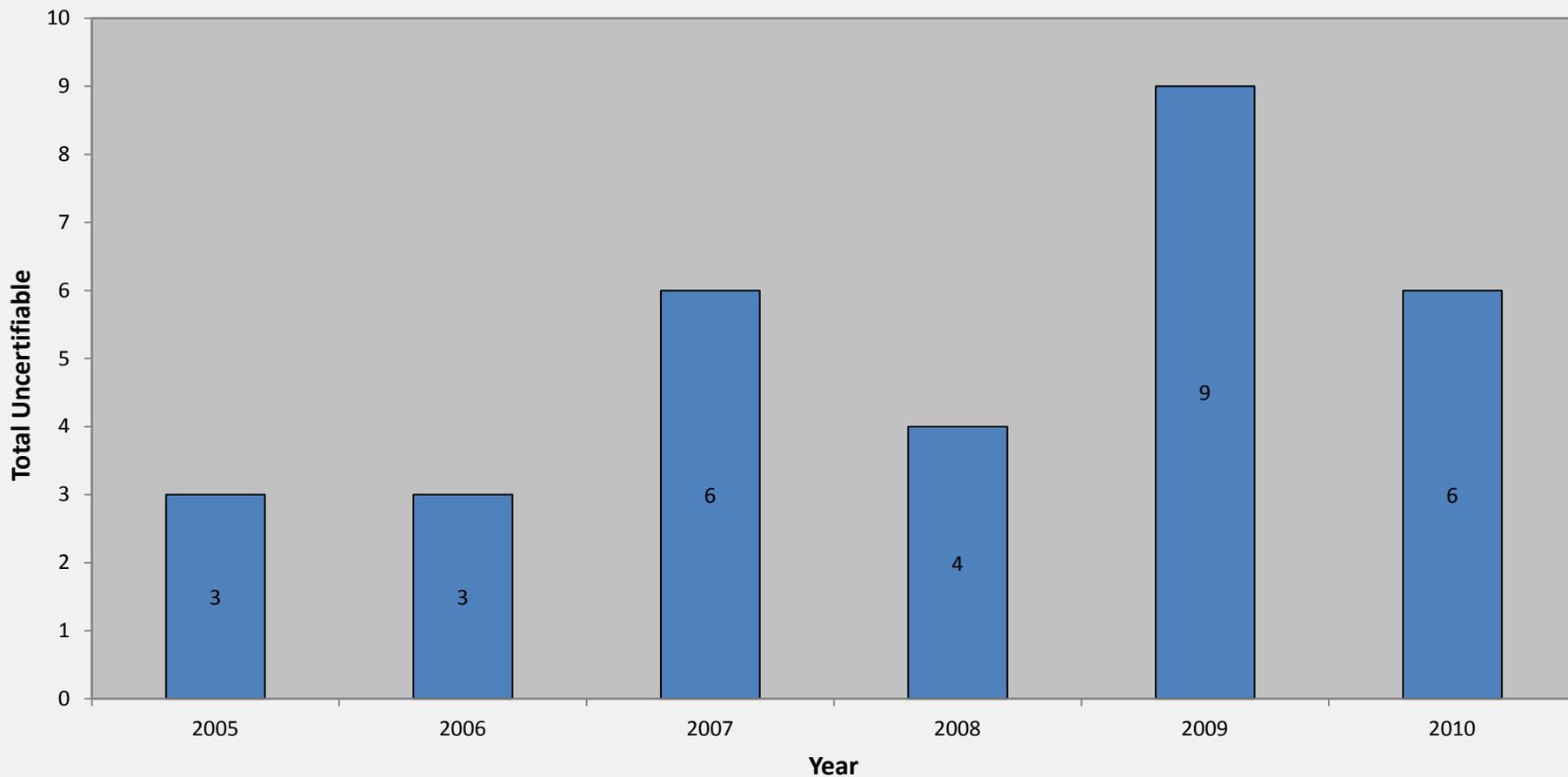
Certification Failures from 2005-2010

Total Certification Failures Each Year Class II Type A2



Certification Failures from 2005-2010

Total Certification Failures Each Year Class II Type B1



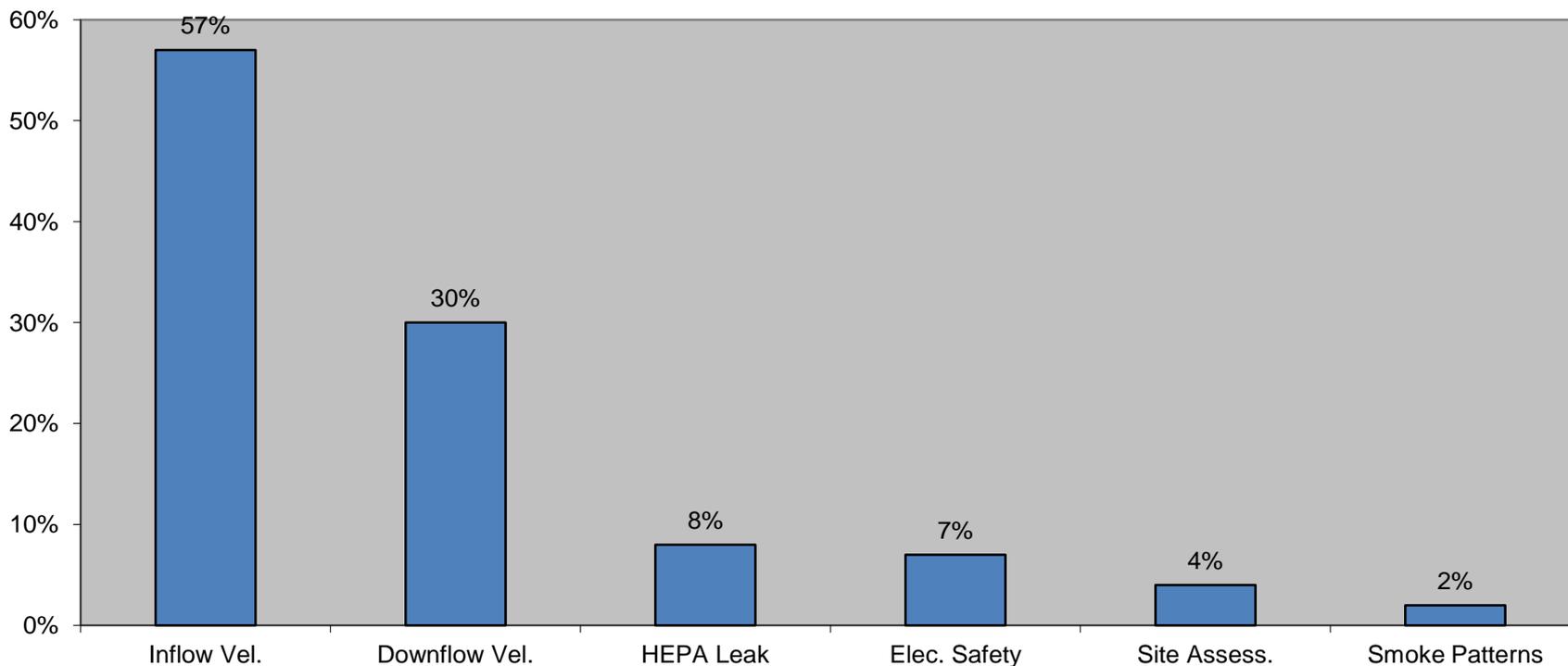
- **Class II Type B2 BSCs did not fail a certification during this period.**



Why were 2% uncertifiable?

Certification failures were due to one or more of the following:

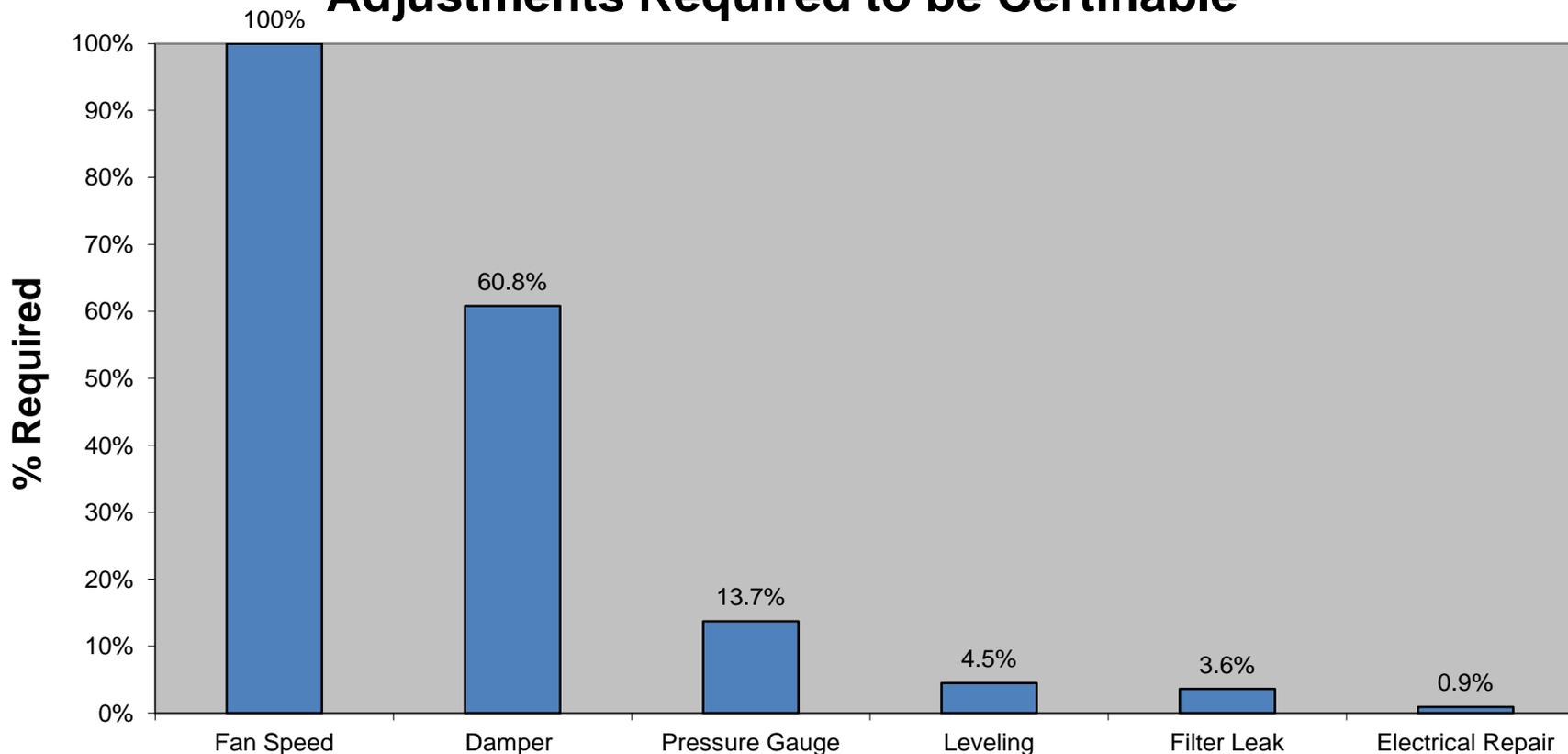
Reasons for Certification Failure



60% of certifications required adjustments.

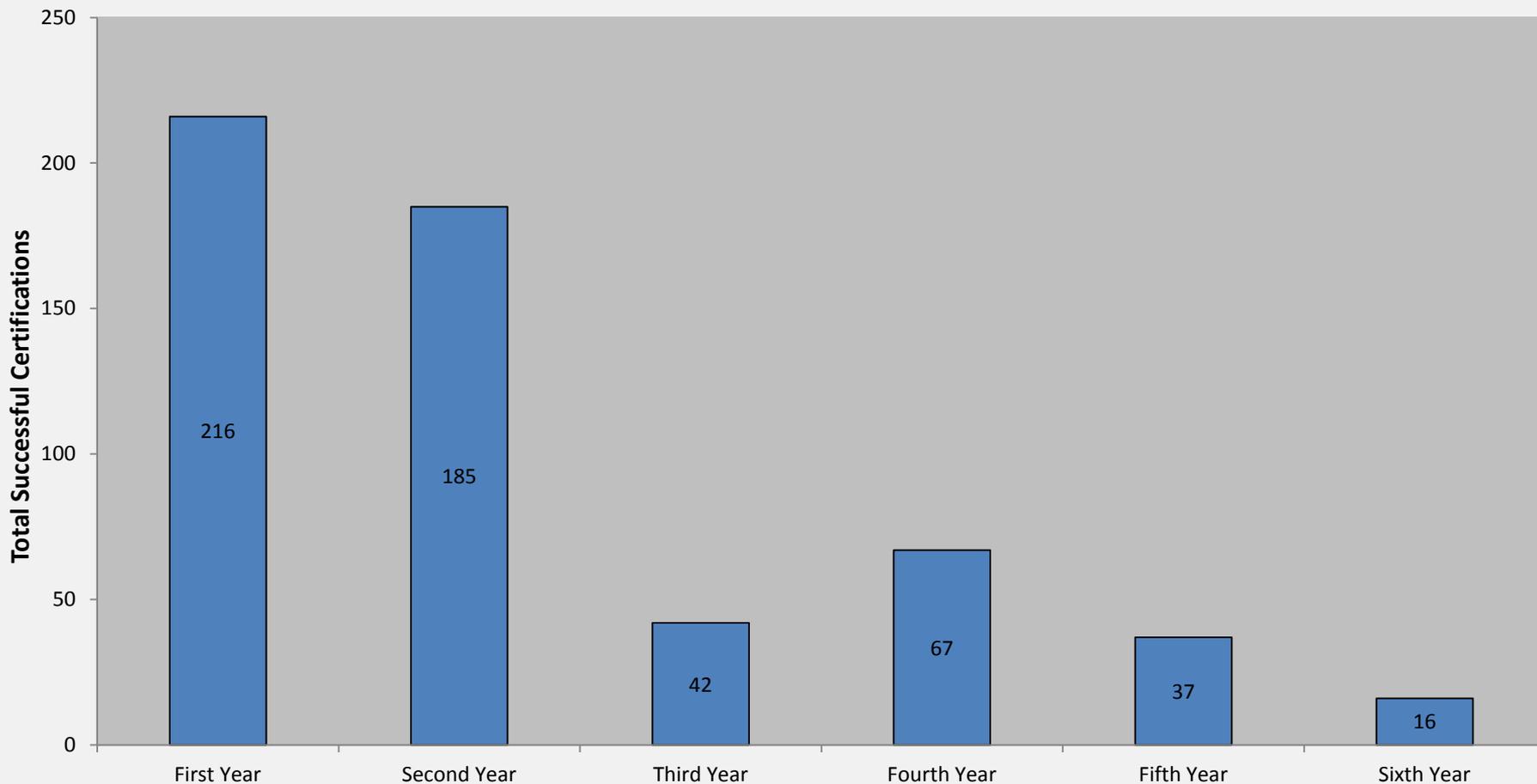
6,284 BSC certifications required one or more of the following adjustments to be certified.

Adjustments Required to be Certifiable



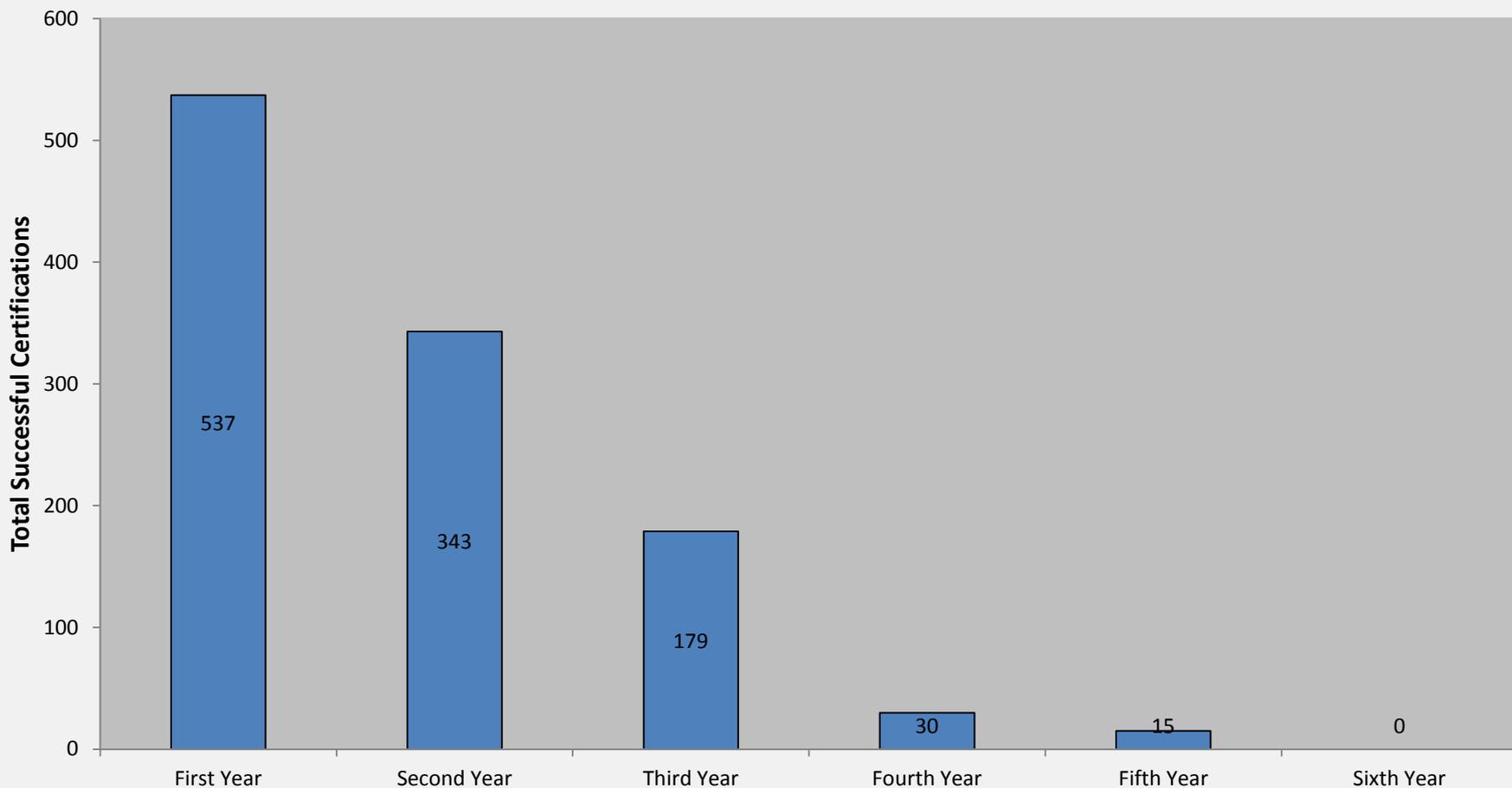
Are successful certifications sustainable?

Consecutive Successful Certifications Class II Type A1



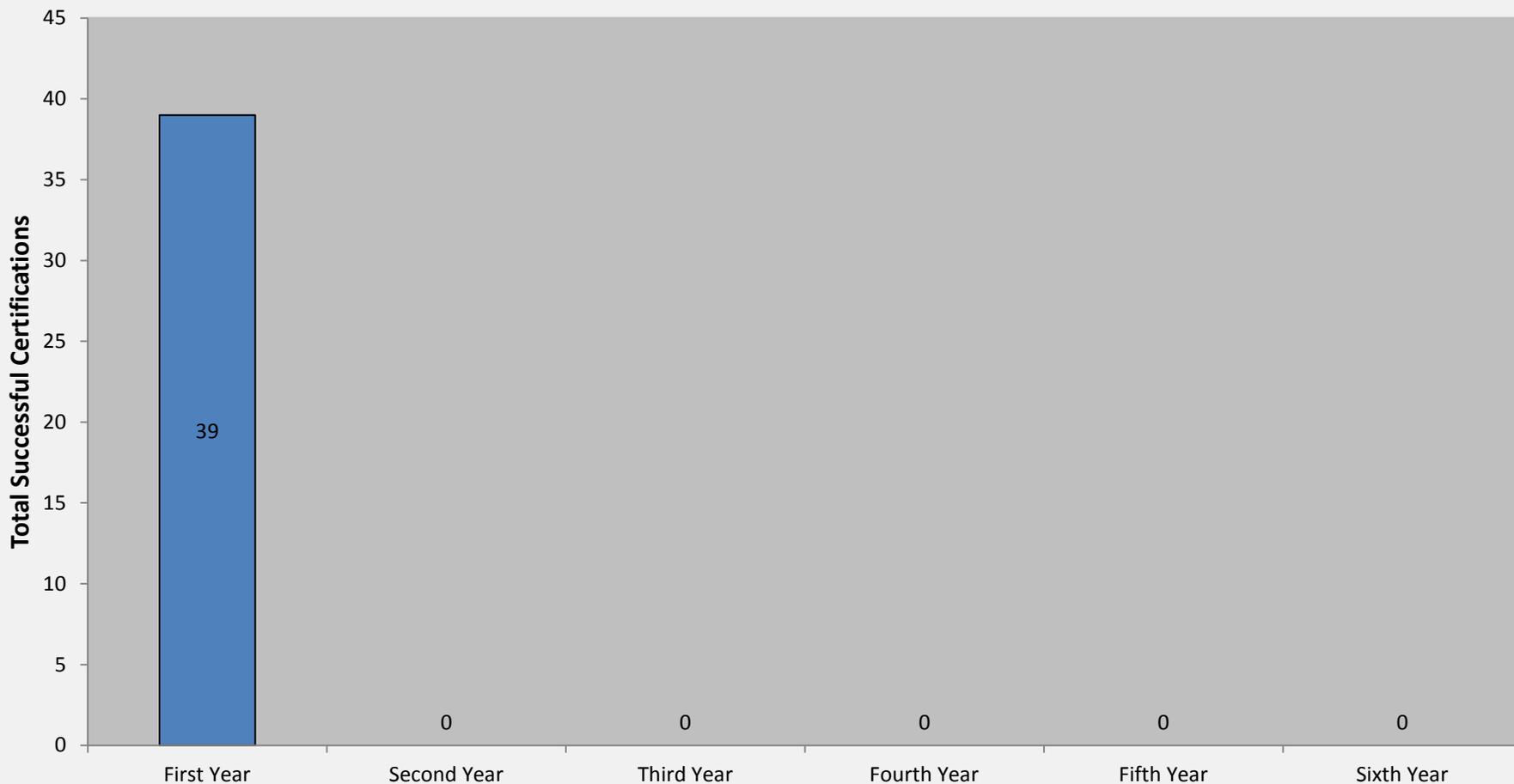
Are successful certifications sustainable?

Consecutive Successful Certifications Class II Type A2



Are successful certifications sustainable?

Consecutive Successful Certifications Class II Type B1



Are successful certifications sustainable?

NO.



- **2,207 BSCs → 10,380 certifications (2005-2010)**
 - 38% certifiable
 - 2% uncertifiable
 - 60% required adjustments for certification
- **Leading causes of certification failure:**
 - Inflow velocity
 - Downflow velocity
- **Leading adjustments needed for certification:**
 - Fan speed adjustment
 - Damper adjustment

Is annual BSC certification necessary?

- **Without adjustments made to the BSC at the annual certification:**
 - 60% would have been uncertifiable.
 - BSCs would not be performing within the appropriate parameters.
- **Consecutive successful certifications are not sustainable.**
- **Without annual certification, there is a higher risk of a containment breach.**
- **Annual certification ensures proper BSC function to maintain personnel, product and environmental protection.**

Is annual BSC certification necessary?



Acknowledgements

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