

LED Troffer Retrofit Kit School EE Program



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Presentation Overview

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Objective: Seeking TF approval of draft workpaper

- WP methodology
- Baselines
- Early retirement
- Effective Useful Life (EUL)
- Simulation recommendations

Measure Description

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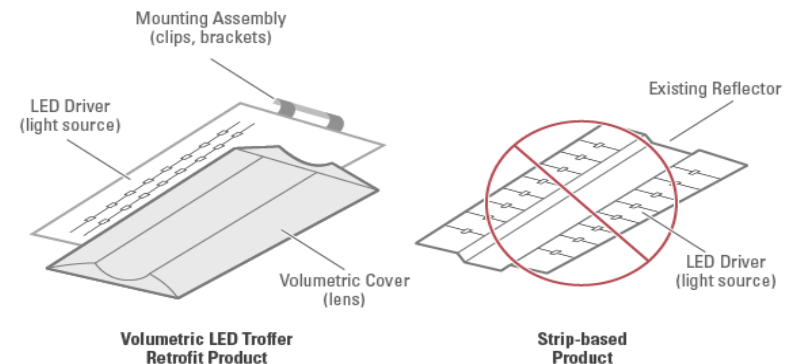
Base Case

- Linear Fluorescent Fixtures
- 2/3/4 Lamp
 - T12 Energy Saver (F42EE)
 - T8 32W (F42ILL)
 - T8 28W (F42WLL)

Thoughts on DI
continuing T12
Incentives?

Measure Case

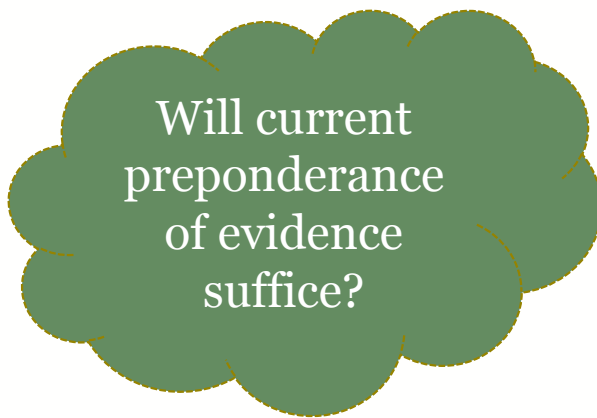
- 2x4 Luminaire Retrofit Kit
- Must include lens
 - Dimming required (T24)



Measure Description

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- **Units:** per fixture
- **Measure Application and Delivery Type**
 - Direct Install
 - ✱ Early Retirement
- **Eligibility**
 - Climate Zones: All
 - Building Types: Education – Primary, Secondary, Relocatable Classrooms
- **Target Market**
 - Schools
- **Market Potential**
 - N/A



Will current
preponderance
of evidence
suffice?

Measure Description

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- **Measure Costs**

- Direct Install
 - ✦ No costs in the work paper

- **EUL**

- 12 year (DEER EUL ID: ILtg-Com-LED-50000hr)

- **NTG**

- 0.85 (DEER EUL ID: School NTG)

- **Savings Potential**

- 25 to 283 kWh/year
- 0.00798 to 0.09137 kW



Use Fixture
RUL or
EUL?

Workpaper Methodology: Baseline

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- Baseline data collection
 - Trained program lighting auditor will record the existing technology
 - Photographs of fixture, lamps, and ballast will be taken

- Baseline methodology
 - DEER methodology (Delta Watts x Operating Hours x Interactive Effects)
 - Delta Watts

Workpaper Methodology: Measure

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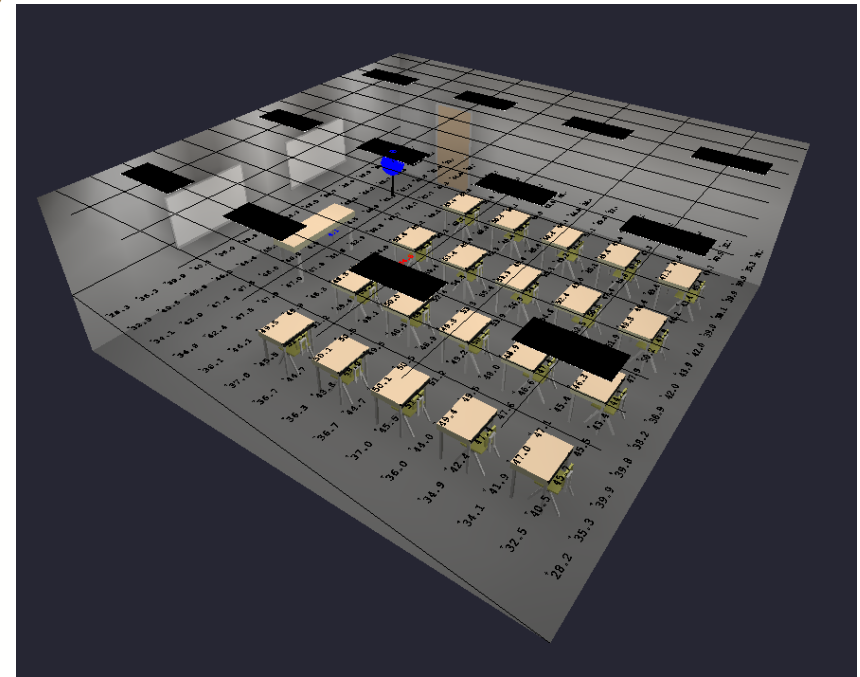
- Measure data collection
 - DLC's filtered qualified products list will be provided
 - Lumens between 3900 to 4200 lumens

- Measure methodology
 - DEER Methodology(Delta Watts x Operating Hours x Interactive Effects)
 - Delta Watts

Classroom Information

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- Dimensions
 - 30ft x 30ft = 900 ft²
 - 23ft x 39ft ≈ 900 ft²
- Ceiling Height
 - 10ft
- Number of desks
 - 20 students
 - 1 professor
- Work plane
 - 2.5ft



Other reflections to consider?

- Reflection
 - Floor: 0.2
 - Wall: 0.5
 - Ceiling: 0.8

Results

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- IES Horizontal Footcandle Minimum
 - ❑ 46 footcandles/500lux
- Linear Fluorescent
 - ❑ Range from 53 to 108 fc average
- LED
 - ❑ 45 to 46 fc average
 - ❑ 41 Watts average
- Title 24 Classroom LPD
 - ❑ 1.2 Watts/ft²
- LED LPD
 - ❑ 0.91 Watts/ft²

Use T8 32W or LPD as
2nd baseline

Summary of Questions for the Cal TF

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- Does the TF agree with using T12s as a baseline where appropriate?
- Is the existing plan for establishing a preponderance of evidence adequate?
- Should other lighting reflections be considered in the lighting model?
- Should the 2nd baseline be based on T8 32W or Lighting Power Density?

Questions or Comments?

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