

Specification compliance review

Section 26 51 00 - Interior Lighting (Ohio Facilities Construction Commission / Ohio School Design Manual, 2026) · Project: Sample: public school lighting spec vs. a common LED troffer

Item: 2x4 recessed LED troffer, general office lighting (commercially available product; manufacturer and catalog numbers withheld)

37

requirements checked

0

Deviation

20

Missing info

13

Review

4

Complies

20 of 37 requirements are not addressed in the product data.

No clear deviations were found, but as it stands the submittal would likely come back. Request the documents listed below from the manufacturer before submitting.

Request from the manufacturer 12 items

- 1 Provide the NRTL listing certificate / file number for the [catalog no.] series showing certification to UL 1598 (or CSA C22.2 No. 250.0 with UL 1598 harmonization), and request Engineer acceptance if CSA is used in lieu of UL.
- 2 Provide the listed driver data sheet showing: power factor (≥ 0.90), THD ($\leq 20\%$), input voltage range 120–277VAC and 60 Hz, output/secondary current, off-state/standby power, maximum case temperature (T_c), thermal foldback/over-temperature protection, and FCC 47 CFR Part 15 compliance.
- 3 Provide the manufacturer's written 0-10V dimming compatibility certification listing the project's specified control devices, confirming full-range (to 1%) dimming.
- 4 Provide the full LM-79 test report(s) (UL Verification Services Test #[redacted] and reports for the specific lumen package/CCT selected), plus the LED package LM-80 report and TM-21 calculation, including LM-80 Section 5.0 test conditions.
- 5 Provide in-situ temperature measurement (ISTMT) data and the resulting in-situ L70 at 50,000 hours.
- 6 Provide LED chromaticity/flux binning documentation ("Bin No. 1" equivalent), color spatial uniformity ($\Delta u'v' \leq 0.004$) and color maintenance over life ($\Delta u'v' \leq 0.007$), and CRI/CCT data for the specific CCT to be furnished.
- 7 Provide a RoHS compliance declaration for the LED package and luminaire.
- 8 Provide the written 5-year limited warranty document confirming coverage of LED arrays and drivers beginning at date of substantial completion.
- 9 Confirm ceiling/installation compliance: NEMA LE 4 ceiling compatibility, suitability for air-handling (plenum) ceilings per NEC Article 300.22, damp/dry location marking, corner screw-attachment provisions to grid and grid support (in addition to hurricane clips), availability of a flange/plaster frame for non-T-bar ceilings, and below-ceiling access for driver/array replacement.
- 10 Confirm lens/frame construction detail showing uniform lens brightness with no light leaks at the lens-to-frame joint, concealed internal wiring, and 105°C minimum insulation on any flexible cord wiring.
- 11 Confirm the luminaire's UL-listed maximum ambient temperature (the 170°F / 76.7°C value on the sheet should be substantiated or corrected).

- 12 Confirm the exact catalog number to be furnished (lumen package A/B/C/D and CCT 30/35/40/50) so that all performance data can be verified against the fixture schedule.

• **Missing info** **Missing information: the product data does not address the requirement (20)**

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.2.B	Comply with NFPA 70 (NEC)	NEC-compliant luminaire	Not stated	—	• Missing info	No statement of NEC compliance; generally implied by NRTL listing but not documented.
1.3.B.1	Wet and damp location labels as required	Damp/wet location label where the application requires	No environmental location rating shown; min/max ambient given only	cut_sheet.pdf, p. 1	• Missing info	For dry interior office use this may not apply, but the data sheet carries no dry/damp/wet location designation at all.
1.3.C.2	Recessed luminaires comply with NEMA LE 4 for ceiling compatibility	NEMA LE 4 compliant	Not stated	—	• Missing info	No NEMA LE 4 reference anywhere in the product data.
1.3.C.4	Luminaires recessed in supply or return air plenum ceilings conform to NEC Article 300.22	Suitable for use in air-handling (plenum) ceiling space per NEC 300.22	Not stated	—	• Missing info	No plenum-rating or air-handling statement provided.
1.3.C.6	No internal wiring visible at normal viewing angles; flexible cord between components min. 105C insulation	Concealed internal wiring; 105°C rated cord where used	Not stated	—	• Missing info	Product data does not describe internal wiring or cord insulation rating.
1.8.A	Driver power factor 0.90 or higher	PF $\geq$ 0.90	Not stated (driver identified as the listed driver)	cut_sheet.pdf, p. 1	• Missing info	Driver model is named but no electrical performance data is included.
1.8.B	Maximum driver case temperature not to exceed driver manufacturer's recommended in-situ value	In-situ Tcase $\leq$ driver manufacturer maximum	Not stated; no Tcase/in-situ thermal data	—	• Missing info	Requires driver data sheet Tc limit plus in-situ measured case temperature.
1.8.C	Output operating frequency: 60Hz	60 Hz	Not stated (only "Driver Voltage 120/277")	cut_sheet.pdf, p. 1	• Missing info	Neither input nor output frequency is documented.

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.8.D	EMI/RFI compliant with FCC 47 CFR Part 15	FCC 47 CFR Part 15 compliance	Not stated	—	• Missing info	No EMC statement on the cut sheet.
1.8.E	Total Harmonic Distortion: 20% maximum	THD $\leq$ 20%	Not stated	—	• Missing info	Requires driver data sheet or luminaire electrical test report.
1.8.H	Secondary current: confirm secondary current specified by the luminaire manufacturer	Stated driver output current matched to the LED array	Not stated; only driver model number	cut_sheet.pdf, p. 1	• Missing info	Output current (mA) per lumen package (A/B/C/D suffix) is not documented.
1.8.I	Dimming switch compatibility certified by manufacturer for the specified luminaire and specified control components	Written dimmer/control compatibility certification	Not provided	—	• Missing info	Requires a compatibility list or letter referencing the project's 0-10V control devices.
1.9.C	Comply with in-situ testing (ISTMT)	In-situ temperature measurement test data	Not provided	—	• Missing info	No ISTMT / in-situ thermal report included.
1.9.D	LEDs shall be RoHS compliant	RoHS compliance	Not stated	—	• Missing info	No RoHS declaration in product data.
1.9.G	LEDs shall be "Bin No. 1" quality	Bin No. 1 LED	Chip identified as the LED package; no binning statement	cut_sheet.pdf, p. 1	• Missing info	Flux/chromaticity bin designation not documented; request LED bin/MacAdam step data.
1.9.K	Luminaires shall not draw power in the off state (0.5 W max only for luminaires with integral sensors/addressable control)	0 W off-state draw (no integral controls provided)	Not stated	—	• Missing info	No standby/off-state power data for the driver.
1.9.L	Color spatial uniformity within .004 of CIE 1976 diagram	$\Delta u'v' \leq 0.004$ spatial	Not stated	—	• Missing info	Not addressed in the product data.

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.9.M	Color maintenance over rated life within .007 of CIE 1976	$\Delta u'v' \leq 0.007$ over life	Not stated	—	• Missing info	Not addressed; may be supportable via DLC listing data / LM-80 chromaticity shift.
1.9.N	Internal thermal protection and adherence to LED device manufacturer thermal management guidelines	Internal thermal protection (e.g., driver thermal foldback) documented	Not stated	—	• Missing info	Confirm whether the listed driver provides thermal foldback / over-temperature protection.
1.9.P	Luminaires fully accessible from below the ceiling plane for changing drivers, power supplies and arrays	Below-ceiling serviceability of driver and LED array	Not stated; only lens/housing construction and integral hurricane clips described	cut_sheet.pdf, p. 1	• Missing info	Confirm that the driver and LED boards can be replaced from below without removing the housing from the grid.

● **Review** Needs review: partly met, option-dependent or ambiguous (13)

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.2.A / 1.2.G	Luminaire listed by Underwriters Laboratories; solid state (LED) lighting to UL 1598	UL (UL 1598) listed luminaire	Cut sheet shows a CSA c-us certification mark and DLC / DLC Premium logos; no UL or UL 1598 listing statement	cut_sheet.pdf, p. 1	● Review	CSA c-us is an NRTL mark to the binational standard (CSA C22.2 No. 250.0 / UL 1598) and is normally acceptable, but the spec names UL and the data sheet never states the standard. Obtain the listing certificate / file number confirming certification to UL 1598 and request Engineer acceptance of CSA as an equivalent NRTL.
1.3.B.3	Lenses shall have uniform brightness throughout entire visible area; lenses and frames without gaps that create light leaks	Uniform luminance, no light leaks at lens/frame joint	"Prismatic clouded lens engineered to mask the unsightly pixilation created by the LED diodes... smoothing, visually appealing appearance"; "Lower glare than traditional P12 prismatic lens"	cut_sheet.pdf, p. 1	● Review	Marketing language addresses pixelation/uniformity but nothing states the lens-to-frame joint is free of light leaks. Consider requiring a sample or photometric/appearance confirmation.
1.3.C.1	Troffer fixtures chain hung from structure independent of grid, or screw attached to grid and grid support at each corner	Screw attachment at each of 4 corners to grid/grid support, or independent chain hangers	"Standard lay-in recessed mounting"; "Integral hurricane clips"; "Surface mount kit—optional"	cut_sheet.pdf, p. 1	● Review	Hurricane clips retain the fixture in the grid but are not the specified corner screw attachment. Confirm availability of corner screw/earthquake attachment provisions and that installation will add independent supports/attachment per 1.3.C.1.

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.3.C.3	Luminaires and drivers operate within design/UL temperature limits in the specified mounting conditions	Suitable operating ambient for recessed plenum installation	Max Ambient Temp 170°F; Min Ambient Temp -4°F	cut_sheet.pdf, p. 1	● Review	170°F = 76.7°C and -4°F = -20°C; the stated range brackets normal plenum conditions. However 170°F is unusually high for a luminaire ambient rating and is not tied to a listed maximum driver case temperature (see 1.8.B); confirm the UL-listed maximum ambient (typically 25°C/40°C) for the luminaire.
1.3.C.5	Provide frame/kit for recessed luminaires mounted in other than T-bar ceilings	Flange/plaster frame kit available for non-grid ceilings	Standard lay-in recessed mounting; optional surface mount kit only	cut_sheet.pdf, p. 1	● Review	Only lay-in grid and surface mount are offered on the sheet. If any locations are drywall/non-T-bar, a flange or plaster frame accessory must be identified.
1.4.A.1	Special warranty — LED arrays: 5 years from date of substantial completion	5-year LED array warranty from substantial completion	"Limited warranty: 5 years on luminaire"	cut_sheet.pdf, p. 1	● Review	Term matches 5 years but the sheet does not state the start date (substantial completion vs. shipment) or the terms of coverage. Provide the written warranty document.
1.4.A.2	Special warranty — Drivers: 5 years from date of substantial completion	5-year driver warranty from substantial completion	Only a general 5-year luminaire warranty is cited; no separate driver warranty statement (driver is the listed driver)	cut_sheet.pdf, p. 1	● Review	Confirm in writing that the 5-year luminaire warranty includes the LED driver and runs from substantial completion.
1.8.F	Meet electrical and thermal conditions described in LM-80 Section 5.0	Driver/LED operated per LM-80 Sec. 5.0 conditions	Not stated; TM-21 projections given (L70 > 200,000 h, L85 > 165,000 h) without underlying LM-80 report	cut_sheet.pdf, p. 1	● Review	TM-21 results imply LM-80 data for the LED package, but the report and test conditions are not submitted.

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.9.A	Comply with IES LM-79 (photometric/electrical testing)	LM-79 test report	"Actual performance data for [catalog no.] — UL Verification Services Inc Test # [redacted]"	cut_sheet.pdf, p. 1	● Review	A third-party test number is cited and DLC listing implies LM-79 testing, but the report itself and the LM-79 designation are not in the submittal; only one lumen package/CCT was tested.
1.9.B	Comply with IES LM-80	LM-80 data for the LED package	TM-21 projections cited (L70/L85) for the LED package; no LM-80 report	cut_sheet.pdf, p. 1	● Review	Provide the LED manufacturer's LM-80 report supporting the TM-21 projections.
1.9.H	Drivers solid state, accept 120 through 277VAC at 60 Hz input	120–277VAC universal input, 60 Hz	"Driver Voltage 120/277"; driver the listed driver	cut_sheet.pdf, p. 1	● Review	"120/277" may indicate a universal 120–277V driver but does not confirm the full continuous range or 60 Hz input. Confirm via the driver data sheet; note catalog numbers shown contain no voltage-selection suffix.
1.9.J	CRI > 80; nominal color temperature as noted, +/- 275K	CRI > 80; CCT within ±275K of nominal	CRI 83.5; measured Color 3108K on the 3000K nominal unit ([catalog no.]); catalog offers 3000K/3500K/4000K/5000K	cut_sheet.pdf, p. 1	● Review	Tested unit: CRI 83.5 > 80 and 3108K is 108K from 3000K nominal, within ±275K. Data is shown for one unit only — confirm CRI ≥ 80 and CCT tolerance for the CCT actually specified for this project (select the correct 30/35/40/50 catalog digits).

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.9.0	LED package/module/array delivers minimum 70% of initial lumens, in-situ, for minimum 50,000 hours	$L70 \geq 50,000$ h in-situ	L70 (TM-21) @ > 200,000 hrs	cut_sheet.pdf, p. 1	● Review	Projected life greatly exceeds the requirement, but the "in-situ" qualifier requires the ISTMT/LM-80-based calculation at the actual in-fixture drive current and temperature (see 1.9.C).

● **Complies** **Complies (4)**

Spec section	Requirement	Required	Proposed product	Source	Status	Remarks
1.8.G	Fully dimmable, 0–10 VDC standard	0–10V dimming standard	"0-10v Dimming standard"; "0-10v Dimming to 1%"	cut_sheet.pdf, p. 1	● Complies	0–10V dimming to 1% is standard on the listed catalog numbers.
1.9.E	LED arrays sealed, high-performance, long-life; minimum 70% rated output at 50,000 hours	≥ L70 at 50,000 h	L70 (TM-21) @ > 200,000 hrs; L85 (TM-21) @ > 165,000 hrs	cut_sheet.pdf, p. 1	● Complies	Projected L70 far exceeds 50,000 h. Note the projection is TM-21 extrapolation; the "sealed" array construction is not separately described.
1.9.F	LED luminaires shall deliver a minimum of 80 lumens per watt	≥ 80 lm/W	133.3 LPW (3955 lm / 29.5 W); catalog table 128–143 LPW across all listed part numbers	cut_sheet.pdf, p. 2	● Complies	Every catalog number listed exceeds 80 lm/W; lowest is 128 lm/W ([catalog no.], 7400 lm / 58 W).
1.9.I	LED light source fully dimmable with compatible low-voltage dimmer switches	Full-range dimming with low-voltage (0-10V) dimmers	0-10v dimming to 1% standard	cut_sheet.pdf, p. 1	● Complies	Dimming to 1% via 0-10V; specific dimmer compatibility certification still owed under 1.8.I.

Reviewer notes. Both PDFs were fully legible. The specification is written as a qualitative (performance) section; it has no Part 2 product paragraphs, so all references above are from Part 1. Requirements for track lighting (1.3.A, including the Luminaire-Level Lighting Controls subparagraphs 1.3.A.3.a–e, which are nested under Track Lighting), explosionproof fixtures (1.5), emergency lighting units (1.6), exit signs (1.7) and support components (1.10) were excluded as targeting other items — note, however, that if the Engineer intends 1.3.A.3 (LLLC: networking, data reporting, daylight harvesting) to apply to all luminaires, this troffer as submitted offers only 0-10V dimming and would not comply; clarification is recommended. The submitted cut sheet contains no fixture-type designation, no project/job information, and no marked-up catalog number — the tabulated performance data is for [catalog no.] (3000K, 30W) only, while sixteen catalog numbers are listed. A marked cut sheet identifying the exact part number for each fixture type should be required before this submittal can be closed. The sheet also shows DLC and DLC Premium qualification, which is not a spec requirement but supports several performance claims.