

Project		Catalog #		Type	
Prepared by		Notes		Date	



Shaper

Shaper Sense™ Trapezoid

Acoustic Lighting
Pendant Luminaire
Suspended Direct/Indirect

Typical Applications

• Office • Education • Healthcare • Hospitality • Retail • Co-working

Compliance and Award Winning Family

Systems | Certification | Partnerships | Awards



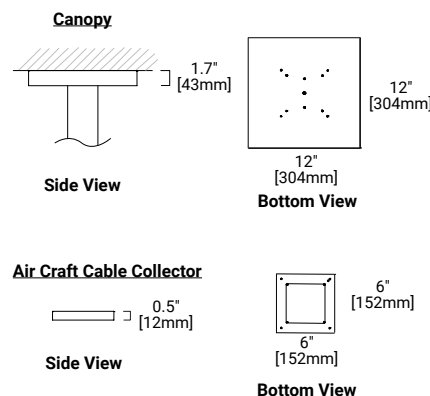
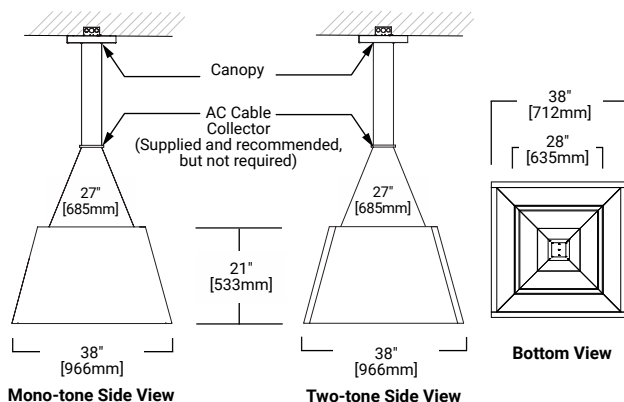
Interactive Menu

- Order Information page 2-3
- Photometric Data page 6
- Acoustic Analysis page 6
- Mounting Information page 5
- Sensor Coverage page 7
- Product Warranty

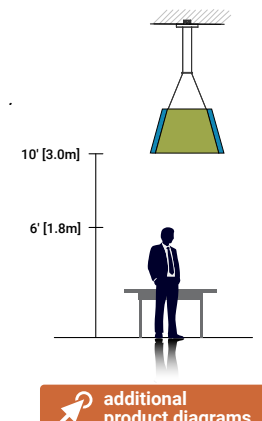
Top Product Features

- Shaper Sense™ is an award winning and patented acoustic lighting product series that merges the concepts of light and sound absorption.
- Light is created by an edge-lit square LED panel with an array of patterns that produce uniform visual distribution.
- Sound absorbing acoustic panels are designed with industry leading [FilzFelt™](#) acoustic materials.
- Available in 96 vibrant felt colors using 100% Wool Design Felt - 100% recyclable.
- Noise Reduction Coefficient (NRC) = 1.4, Sound Absorption Average (SAA) = 1.38. Learn more at [Noise at Work, Knoll - Workplace Research](#).
- Select pairs of opposing panels in mono-tone or two-tone color choices.
- Options to meet Buy American Act requirements

Dimensions



Scale



Order Information

FIXTURE NUMBER SAMPLE: ShSe-TRAP-1-L40-80-UNV-CNPY-STD-TP300-BP170

Domestic Preferences	Series	Shape / Family	Light Level (Lumens, Wattage, Color Temp, CRI)	Voltage	Mounting	Dimming	Finish	Controls (optional)
Domestic Preferences	Series	Shape / Family	Light Level / CCT / CRI (Lumens Wattage, Color Temp, CRI)	Voltage	Mounting	Dimming	Finish	Controls
Blank =Standard BAA =Buy American Act	ShSe = Shaper Sense	TRAP =Trapezoid shaped acoustic light fixture	1-L30-90 =2487 lumens, 30W, 3000K, 90 CRI 1-L35-80 =3092 lumens, 30W, 3500K, 80 CRI 1-L40-80 =3036 lumens, 30W, 4000K, 80 CRI 2-L30-90 =3181 lumens, 39W, 3000K, 90 CRI 2-L35-80 =3955 lumens, 39W, 3500K, 80 CRI 2-L40-80 =3884 lumens, 39W, 4000K, 80 CRI	UNV =Universal Voltage (120-277)	CNPY =Canopy mount (works for surface, open structure, and gypsum ceilings)	STD =0-10V	(See below and page 3 for panel and color selections)	SWTPD1 =Wavelinx Wireless Tile Sensor LWTPD1 =LumaWatt Pro Wireless Tile Sensor
Notes Only product configurations with this designated prefix are built to be compliant with the Buy American Act of 1933 (BAA). Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.	Notes	Notes	Notes 3000K – only in 90 CRI, 3500K only available in 80 CRI, 4000K only available in 80 CRI.	Notes	Notes	Notes	Notes	Notes

Top Panel Selection (TP)

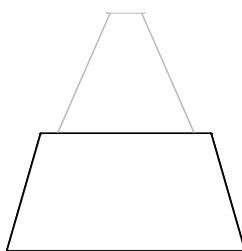
Bottom Panel Selection (BP)

Top Panel Selection (TP)		Bottom Panel Selection (BP)	
Top Panel Selection (TP)		Bottom Panel Selection (BP)	
TP487 =Pfirsich TP023 =Koralle TP945 =Drachenfrucht TP221 =Himbeere TP136 =Weinrot TP209 =Bordeaux TP102 =Kirsche TP201 =Rot TP125 =Tomate TP179 =Hellrot TP180 =Terracotta TP173 =Mango TP105 =Rost TP573 =Kupfer TP116 =Orange TP495 =Abricot TP124 =Gelb TP131 =Honig TP509 =Kamel TP550 =Ocker TP274 =Senf TP108 =Zitrone TP403 =Mais TP535 =Sesam TP203 =Vanille TP027 =Kartause TP384 =Lind TP713 =Kiwi TP377 =Maigrün TP732 =Farn TP378 =Oliv TP260 =Sprießen TP156 =Loden TP343 =D'Grün TP435 =Smaragd TP625 =Pinie TP248 =Jade TP472 =Minze TP575 =Salbei TP483 =Adria TP548 =Türkis TP312 =Lagune TP345 =Pazifik TP308 =Petro TP698 =Dunst TP405 =Stahl TP215 =Meer TP540 =Ozean	TP533 =Indigo TP282 =D'Blau TP111 =Traube TP626 =Azur TP647 =Kobalt TP686 =Enzian TP272 =Royal TP286 =H'Blau TP995 =Wasser TP458 =Bekwölkt TP284 =Himmel TP613 =Gletscher TP551 =Eis TP113 =Immergrün TP099 =Lila TP667 =Amethyst TP242 =Pink TP640 =Granat TP634 =Erröten TP671 =Pfingstrose TP255 =Flieder TP269 =Violett TP437 =Aubergine TP250 =Trüffelbraun TP220 =Rehbraun TP411 =Alpaka TP190 =Natur-meliert TP200 =Natur TP331 =Sahara TP311 =Mandel TP467 =Sand TP481 =Sandstein TP100 =Wollweiss TP110 =Rohweiss TP160 =Beige TP529 =Champagner TP150 =Weiss TP428 =Silber TP427 =Stein TP021 =Beton TP170 =Asche TP423 =Hellgrau TP408 =Taupe TP175 =Graphit TP425 =Taubengrau TP446 =Kohle TP300 =Anthrazit TP426 =Schwarz	BP487 =Pfirsich BP023 =Koralle BP945 =Drachenfrucht BP221 =Himbeere BP136 =Weinrot BP209 =Bordeaux BP102 =Kirsche BP201 =Rot BP125 =Tomate BP179 =Hellrot BP180 =Terracotta BP173 =Mango BP105 =Rost BP573 =Kupfer BP116 =Orange BP495 =Abricot BP124 =Gelb BP131 =Honig BP509 =Kamel BP550 =Ocker BP274 =Senf BP108 =Zitrone BP403 =Mais BP535 =Sesam BP203 =Vanille BP027 =Kartause BP384 =Lind BP713 =Kiwi BP377 =Maigrün BP732 =Farn BP378 =Oliv BP260 =Sprießen BP156 =Loden BP343 =D'Grün BP435 =Smaragd BP625 =Pinie BP248 =Jade BP472 =Minze BP575 =Salbei BP483 =Adria BP548 =Türkis BP312 =Lagune BP345 =Pazifik BP308 =Petro BP698 =Dunst BP405 =Stahl BP215 =Meer BP540 =Ozean	BP533 =Indigo BP282 =D'Blau BP111 =Traube BP626 =Azur BP647 =Kobalt BP686 =Enzian BP272 =Royal BP286 =H'Blau BP995 =Wasser BP458 =Bekwölkt BP284 =Himmel BP613 =Gletscher BP551 =Eis BP113 =Immergrün BP099 =Lila BP667 =Amethyst BP242 =Pink BP640 =Granat BP634 =Erröten BP671 =Pfingstrose BP255 =Flieder BP269 =Violett BP437 =Aubergine BP250 =Trüffelbraun BP220 =Rehbraun BP411 =Alpaka BP190 =Natur-meliert BP200 =Natur BP331 =Sahara BP311 =Mandel BP467 =Sand BP481 =Sandstein BP100 =Wollweiss BP110 =Rohweiss BP160 =Beige BP529 =Champagner BP150 =Weiss BP428 =Silber BP427 =Stein BP021 =Beton BP170 =Asche BP423 =Hellgrau BP408 =Taupe BP175 =Graphit BP425 =Taubengrau BP446 =Kohle BP300 =Anthrazit BP426 =Schwarz
Notes Selection for BOX top panel color. See diagram on page 3 for clarification.		Notes Selection for BOX bottom panel color. See diagram on page 3 for clarification.	

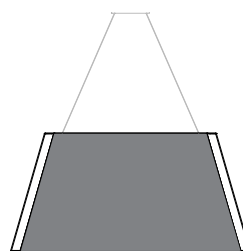
Ordering Information

- Select colors for each opposing panel set.
- For contrasting effects, select a different color for each paired side.
- For a monochromatic effect, select the same color for both pairs of panels.
- For a complete catalog number, select a color for side AA, and a color for side BB.

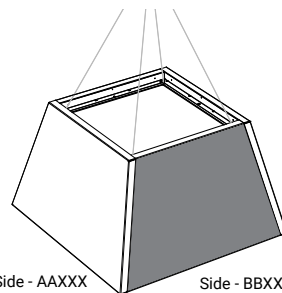
Select AAXXX for Side Panel + Color Selection from chart.
 Select BBXXX for Side Panel + Color Selection from chart.
 XXX = 3 digit code from FilzFelt color chart options (see below).



Side - AAXXX



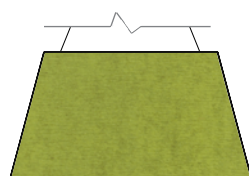
Side - BBXXX



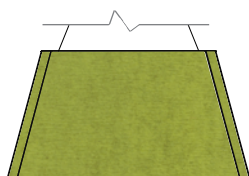
Side - AAXXX

Side - BBXXX

EXAMPLE OF MONO-TONE - Side AA = 713 and Side BB = 713 Kiwi

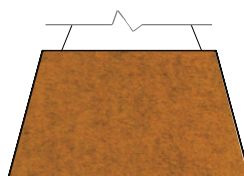


AA713

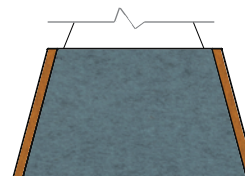


BB713

EXAMPLE OF TWO-TONE - Side AA116 = 116 Orange and Side BB312 = 312 Lagune



AA116



BB312

FILZFELT COLOR CHART OPTIONS

487 Pfirsich	023 Koralle	945 Drachenfrucht	221 Himbeere	136 Weinrot	209 Bordeaux	102 Kirsche	201 Rot	125 Tomate	179 Hellrot	180 Terracotta	173 Mango
105 Rost	573 Kupfer	116 Orange	495 Abricot	124 Gelb	131 Honig	509 Kamel	550 Ocker	274 Senf	108 Zitrone	403 Mais	535 Sesam
203 Vanille	027 Kartause	384 Lind	713 Kiwi	377 Maigrün	732 Farn	378 Oliv	260 Sprießen	156 Loden	343 D'Grün	435 Smaragd	625 Pinie
248 Jade	472 Minze	575 Salbei	483 Adria	548 Türkis	312 Lagune	345 Pazifik	308 Petrol	698 Dunst	405 Stahl	215 Meer	540 Ozean
533 Indigo	282 D'Blau	111 Traube	626 Azur	647 Kobalt	686 Enzian	272 Royal	286 H'Blau	995 Wasser	458 Bekwölkt	284 Himmel	613 Gletscher
551 Eis	113 Immergrün	099 Lila	667 Amethyst	242 Pink	640 Granat	634 Eröten	671 Pfingstrose	255 Flieder	269 Violett	437 Aubergine	250 Trüffelbraun
220 Rehbraun	411 Alpaka	190 Natur-meliert	200 Natur	331 Sahara	311 Mandel	467 Sand	481 Sandstein	100 Wollweiss	110 Rohweiss	160 Beige	529 Champagner
150 Weiss	428 Silber	427 Stein	021 Beton	170 Asche	423 Hellgrau	408 Taupe	175 Graphit	425 Taubengrau	446 Kohle	300 Anthrazit	426 Schwarz

Product Specifications

Construction

- Light Engine is 6063-T5 extruded aluminum and 20 gauge cold rolled steel frame
- Acoustic Light Fixture is supported with max load 132lb cable
- Weight: 35lbs fully assembled

Electrical

- Standard driver features electronic universal voltage (120-277V/ 50-60 Hz), greater than 0.9 power factor
- Less than 20% harmonic distortion, and ambient temperature of 25°C (77°F). 0-10V dimming standard

LED Optics

- Light Engine is 85% transparent
- LPW 100+ in some 3500K and 4000K configurations
- Light Engine offered in 80 CRI for 3500K and 4000K CCTs, and in 90 CRI for 3000K CCT

Mounting

- Acoustic Light Fixture supported by aircraft cable. 12ft adjustable AC cable supplied
- Recommended minimum height of 15" from AC cable collector to Light Engine
- Driver box assembly can mount to any ceiling type: open structure, gyp., or acoustic tile
- Acoustic Light fixture can be supported by junction box supporting 50lb load
- Low voltage cable connects to remote driver box assembly
- AC Cable Collector recommended but not required

Finish

- Light Engine - Housing is white powder coat paint for superior protection against fade and wear
- Acoustic panels have a choice using 100% Wool Design Felt, in 96 color selections for either a mono-tone look (all 4 panels the same), or a two-tone look with opposing pairs of colors.
- Sound absorbing substrate is made of a minimum 60% recycled content and is 100% recyclable

Compliance

- Light Engine components are UL recognized and are cULus listed for 25°C ambient environments, dry listed
- Acoustic Light Fixture tested per IESNA LM-79
- LM-80 data supplied by LED manufacturer and utilized in TM-21 lumen maintenance projections
- Acoustic Light Fixture tested to ASTM 423C-17 standards and FCC compliant
 - Noise Reduction Coefficient - NRC = 1.4
 - Sound Absorption Average - SAA = 1.38
 - Apparent NRC and SAA values calculated from using total test area occupied by light fixtures

Environment

- Indoor only, dry listing
- 25°C ambient temperature

Control

- 0-10V dimming standard
- Optional - WaveLinX and Lumawatt Pro wireless control systems

Maintenance

- Cleaning of FilzFelt acoustic materials found [here](#)

Awards

- Best of NeoCon : Gold Lighting: Decorative and Hospitality
- 2019 IES Progress Report, selection
- Architect Magazine Spring 2019, selection
- Architectural SSL Magazine, Product Innovation Award (PIA) 2019
- Architectural Products Magazine, Product Innovation Award (PIA) 2019
- LED Magazine, Sapphire Award Finalist

Warranty

- Five year warranty standard

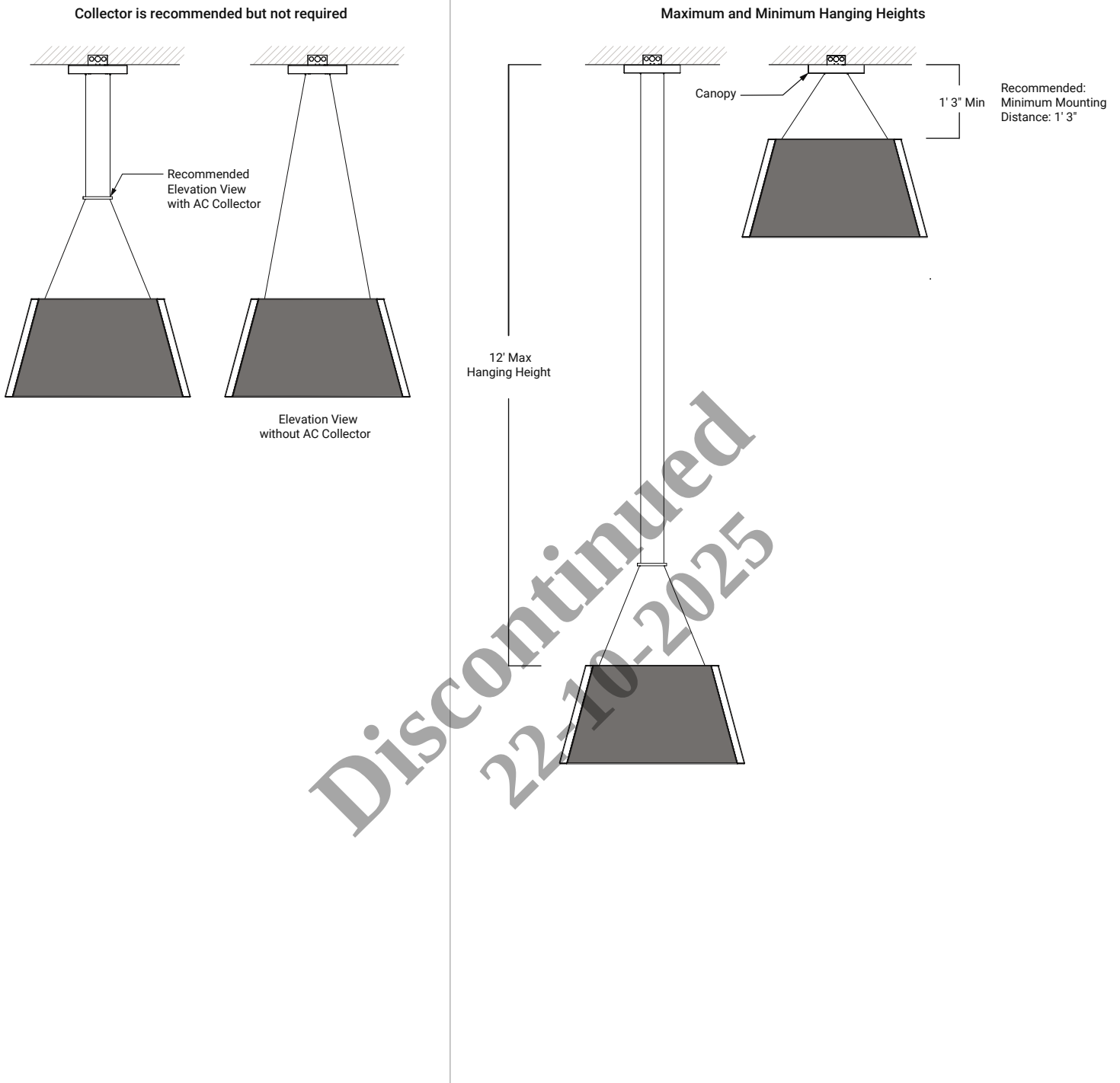
Acoustic Material Maintenance: Cleaning and Health Features



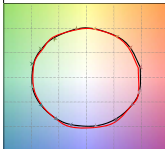
- A health benefit to using FilzFelt materials, is the ability for the material to be steam cleaned up to 200 deg F (93.3 deg C). This protects the space by ensuring that bacteria and viruses don't live on these surfaces, but allows the material to meet the needs of spaces today.
- The acoustic sound absorption substrate material used in Shaper Sense products are cleanable by bleach and other disinfectants. This makes the materials suitable for clean environments.

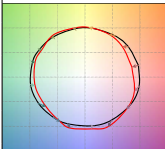
	Felt	Acoustic Substrate
General Cleaning	Vacuum occasionally to remove general air-borne debris. Spot clean with a mild enzyme-based detergent (such as Tide Free) and water solution. Avoid aggressive rubbing as this can continue the felting process and change the surface appearance of the felt.	Vacuum occasionally to remove general air-borne debris. Spot clean with a mild soap (such as Dawn) and water solution.
Deep Cleaning	Professionally steam clean	Wipe with 10:1 water-to-household bleach solution*.

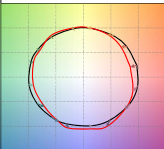
Mounting Information and Recommendations



Photometric Data

SHAPER SENSE - TRAP @ 3000K / 90 CRI		
Filename	ShSe-TRAP-2-L30-90-UNV-STD.ies	Color Vector Graphic
Test No.	P316062	
Lumcat	ShSe-TRAP-2-L30-90-UNV-STD	
Lumens	3181 Lm	
Watts	38.8 W	
LPW	82 Lm/W	
CCT	3000K	TM-30-15
SC (0/90/45)	2.4 / 1.51 / 1.84	R_f 91.7 R_g 99.7
		59% up 41% down

SHAPER SENSE - TRAP @ 3500K / 80 CRI		
Filename	ShSe-TRAP-2-L35-80-UNV-STD.ies	Color Vector Graphic
Test No.	P316063	
Lumcat	ShSe-TRAP-2-L35-80-UNV-STD	
Lumens	3955 Lm	
Watts	38.8 W	
LPW	101.9 Lm/W	
CCT	3500K	TM-30-15
SC (0/90/45)	2.4 / 1.51 / 1.84	R_f 81 R_g 95.9
		59% up 41% down

SHAPER SENSE - TRAP @ 4000K / 80 CRI		
Filename	ShSe-TRAP-2-L40-80-UNV-STD.ies	Color Vector Graphic
Test No.	P316064	
Lumcat	ShSe-TRAP-2-L40-80-UNV-STD	
Lumens	3884 Lm	
Watts	38.8 W	
LPW	100.1 Lm/W	
CCT	4000K	TM-30-15
SC (0/90/45)	2.4 / 1.51 / 1.84	R_f 81 R_g 95.9
		59% up 41% down

Lumen Maintenance

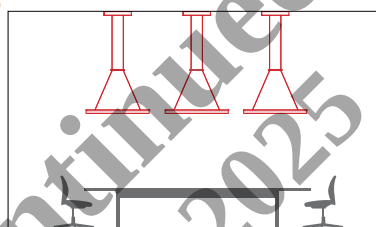
Ambient Temperature	Lumen Maintenance: TM-21 (60,000 Hours)	Theoretical L70 (Hours)
25°C	> 89%	> 60,000

Acoustic Analysis - Reverberation Decrease

Reverberation Time example. Acoustic test reports available by request.

RT60 : Light Fixtures without sound absorption

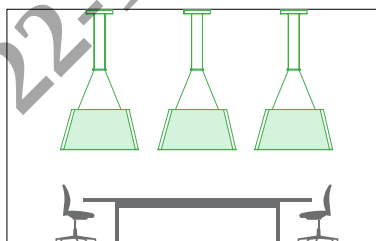
Frequency (Hz)						Avg
125	250	500	1000	2000	4000	250-2k
0.76	0.97	1.15	1.11	0.91	0.85	1.04



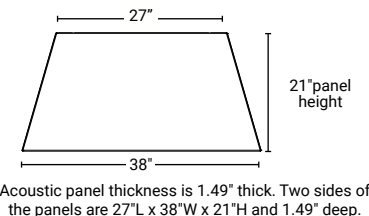
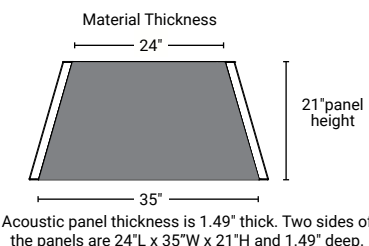
6 fixture comparison

RT60 : Light Fixtures with sound absorption

Frequency (Hz)						Avg
125	250	500	1000	2000	4000	250-2k
0.64	0.75	0.68	0.6	0.53	0.52	0.64



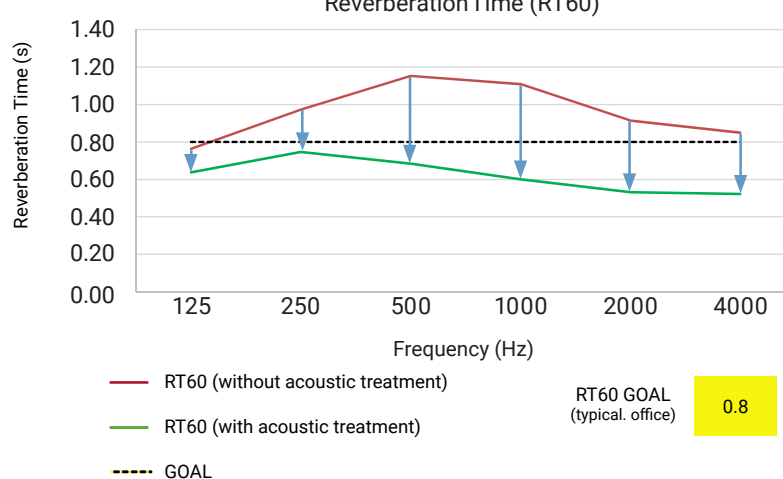
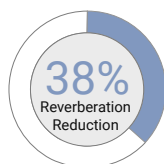
Reverberation: prolongation of a sound; resonance.
Reverberation Time (RT60): Reverberation time is a measure of the time required for the sound to decay or sound pressure level to reduce by 60 dB.



% Improvement in Reverberation (RT60)

Frequency (Hz)						Avg
125	250	500	1000	2000	4000	250-2k
16%	23%	41%	46%	42%	39%	38%

Ex. 38% Reverberation decrease (RT60) using 6 Shaper Sense Trapezoid fixtures.



Connected Control (Optional)

WaveLinx (SWPD1) Wireless Sensor LumaWatt Pro (LWIPD1) Ordering Information.

Product Family	Occupancy Technology	Sensing Technology	Coverage Pattern
SWT = WaveLinx Wireless Sensor LWT = LumaWatt Pro Wireless Sensor	P = Passive Infrared	D = Dimming Daylight Harvesting (Closed Loop)	1 = ~ 144 Square Feet

WaveLinx

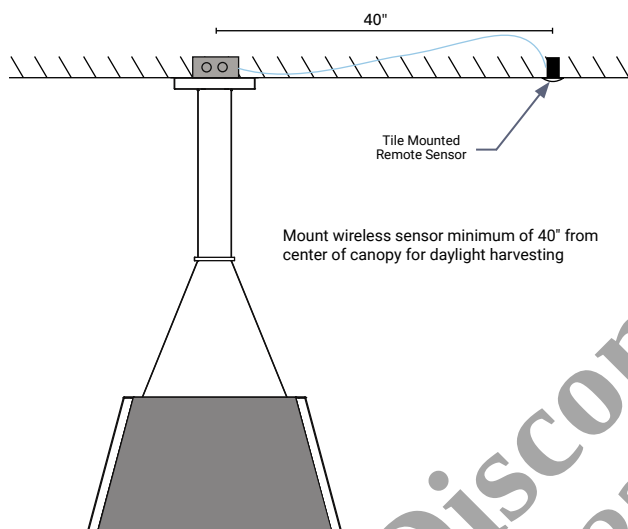
The WaveLinx Tilemount sensor option is an integral part of the WaveLinx Wireless Connected Lighting System. It offers 3 amp relay control and continuous 0-10V dimming of Shaper Sense luminaires. The tilemount sensor provides daylight dimming and control for a single luminaire or can be daisy chained for group luminaire control. The sensor's control module allows simple electrical junction box mounting via a ½" knockout or direct connection to the junction box attached to the Shaper luminaire. The WaveLinx Tilemount sensor operates on a wireless mesh network based on IEEE 802.15.4 standards and is controlled by a WaveLinx Wireless Area Controller.

LumaWatt Pro

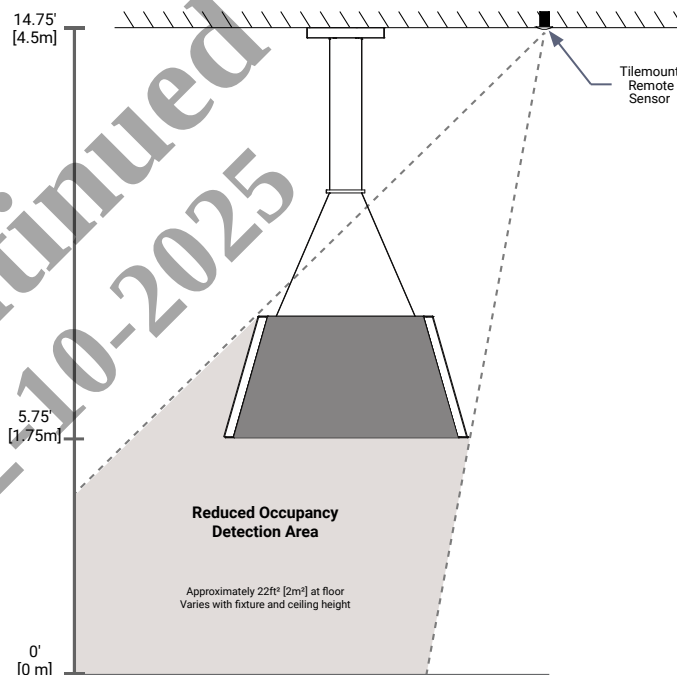
The LumaWatt Pro Tilemount sensor option is field installed to a single luminaire's junction box or daisy chained to a group of luminaires, providing lighting control and sensing in an independent, fault-proof, resilient network of powerful end-points. Sensors have profiles stored internally containing all of the variables for the application once a configuration is set and is able to manage the fixture without connectivity to the system. The sensors gather data from four on-board inputs: Passive infrared occupancy detection, daylight, temperature, and electrical current use. Wireless gateways communicate with the sensors and transmit the data using industry-standard wired technology to the Energy Manager, for powerful, familiar dashboards of information tailored for access on a connected computer. Energy Managers connect to optional cloud-based applications, maximizing the dense, data-rich sensing within the footprint of the luminaire for management of the building environment, and much more.

Sensor Mounting and Coverage

Daylight Harvesting - Recommended mounting



Occupancy Detection - Coverage



Wireless Sensor Example Layout

Daisy-chain switching control and 0-10V dimming up to 360W of luminaires per sensor

