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

Interactive Menu

- Order Information page 2-3
- Photometric Data page 6
- Acoustic Analysis page 6
- Mounting Information page 5
- Sensor Coverage page7
- Product Warranty

Compliance and Award Winning Family

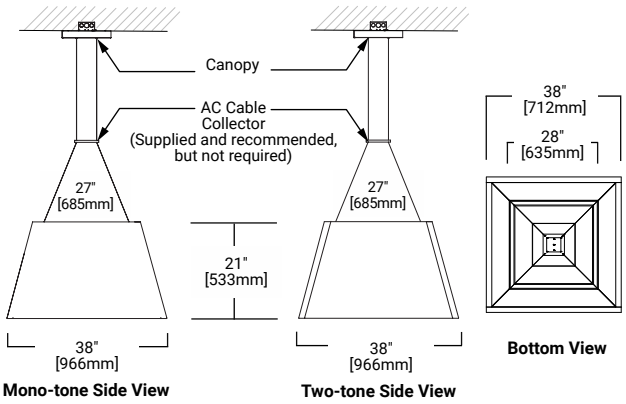
Systems | Certification | Partnerships | Awards

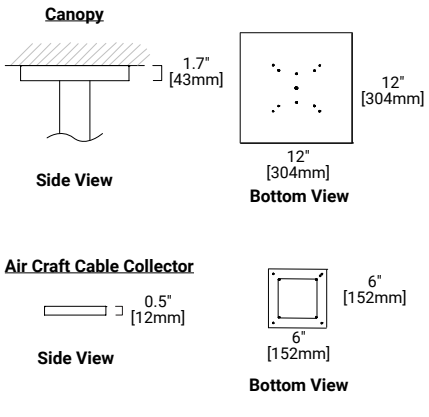
Connected Systems
Light ARchitect™
filzfelt
BEST OF NeoCon contract
ARCHITECT

Top Product Features

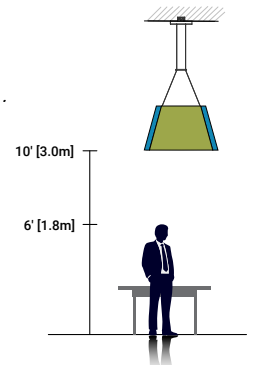
- Shaper Sense™ is an award winning and patented acoustic lighting product series that merges the concepts of light and sound absorption.
- Light is created by an edge-lit square LED panel with an array of patterns that produce uniform visual distribution.
- Sound absorbing acoustic panels are designed 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



additional product diagrams

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)
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)

Finish	
TP487=Pfirsich	**TP533**=Indigo
TP023=Koralle	**TP282**=D'Blau
TP945=Drachenfrucht	**TP111**=Traube
TP221=Himbeere	**TP626**=Azur
TP136=Weinrot	**TP647**=Kobalt
TP209=Bordeaux	**TP686**=Enzian
TP102=Kirsche	**TP272**=Royal
TP201=Rot	**TP286**=H'Blau
TP125=Tomate	**TP995**=Wasser
TP179=Hellrot	**TP458**=Bekwölkt
TP180=Terracotta	**TP284**=Himmel
TP173=Mango	**TP613**=Gletscher
TP105=Rost	**TP551**=Eis
TP573=Kupfer	**TP113**=Immergrün
TP116=Orange	**TP099**=Lila
TP495=Abricot	**TP667**=Amethyst
TP124=Gelb	**TP242**=Pink
TP131=Honig	**TP640**=Granat
TP509=Kamel	**TP634**=Erröten
TP550=Ocker	**TP671**=Pfingstrose
TP274=Senf	**TP255**=Flieder
TP108=Zitrone	**TP269**=Violett
TP403=Mais	**TP437**=Aubergine
TP535=Sesam	**TP250**=Trüffelbraun
TP203=Vanille	**TP220**=Rehbraun
TP027=Kartause	**TP411**=Alpaka
TP384=Lind	**TP190**=Natur-meliert
TP713=Kiwi	**TP200**=Natur
TP377=Maigrün	**TP331**=Sahara
TP732=Farn	**TP311**=Mandel
TP378=Oliv	**TP467**=Sand
TP260=Sprießen	**TP481**=Sandstein
TP156=Loden	**TP100**=Wollweiss
TP343=D'Grün	**TP110**=Rohweiss
TP435=Smaragd	**TP160**=Beige
TP625=Pinie	**TP529**=Champagner
TP248=Jade	**TP150**=Weiss
TP472=Minze	**TP428**=Silber
TP575=Salbei	**TP427**=Stein
TP483=Adria	**TP021**=Beton
TP548=Türkis	**TP170**=Asche
TP312=Lagune	**TP423**=Hellgrau
TP345=Pazifik	**TP408**=Taupe
TP308=Petrol	**TP175**=Graphit
TP698=Dunst	**TP425**=Taubengrau
TP405=Stahl	**TP446**=Kohle
TP215=Meer	**TP300**=Anthrazit
TP540=Ozean	**TP426**=Schwarz

Notes
Selection for BOX top panel color. See diagram on page 3 for clarification.

Bottom Panel Selection (BP)

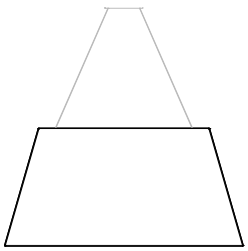
Finish	
BP487=Pfirsich	**BP533**=Indigo
BP023=Koralle	**BP282**=D'Blau
BP945=Drachenfrucht	**BP111**=Traube
BP221=Himbeere	**BP626**=Azur
BP136=Weinrot	**BP647**=Kobalt
BP209=Bordeaux	**BP686**=Enzian
BP102=Kirsche	**BP272**=Royal
BP201=Rot	**BP286**=H'Blau
BP125=Tomate	**BP995**=Wasser
BP179=Hellrot	**BP458**=Bekwölkt
BP180=Terracotta	**BP284**=Himmel
BP173=Mango	**BP613**=Gletscher
BP105=Rost	**BP551**=Eis
BP573=Kupfer	**BP113**=Immergrün
BP116=Orange	**BP099**=Lila
BP495=Abricot	**BP667**=Amethyst
BP124=Gelb	**BP242**=Pink
BP131=Honig	**BP640**=Granat
BP509=Kamel	**BP634**=Erröten
BP550=Ocker	**BP671**=Pfingstrose
BP274=Senf	**BP255**=Flieder
BP108=Zitrone	**BP269**=Violett
BP403=Mais	**BP437**=Aubergine
BP535=Sesam	**BP250**=Trüffelbraun
BP203=Vanille	**BP220**=Rehbraun
BP027=Kartause	**BP411**=Alpaka
BP384=Lind	**BP190**=Natur-meliert
BP713=Kiwi	**BP200**=Natur
BP377=Maigrün	**BP331**=Sahara
BP732=Farn	**BP311**=Mandel
BP378=Oliv	**BP467**=Sand
BP260=Sprießen	**BP481**=Sandstein
BP156=Loden	**BP100**=Wollweiss
BP343=D'Grün	**BP110**=Rohweiss
BP435=Smaragd	**BP160**=Beige
BP625=Pinie	**BP529**=Champagner
BP248=Jade	**BP150**=Weiss
BP472=Minze	**BP428**=Silber
BP575=Salbei	**BP427**=Stein
BP483=Adria	**BP021**=Beton
BP548=Türkis	**BP170**=Asche
BP312=Lagune	**BP423**=Hellgrau
BP345=Pazifik	**BP408**=Taupe
BP308=Petrol	**BP175**=Graphit
BP698=Dunst	**BP425**=Taubengrau
BP405=Stahl	**BP446**=Kohle
BP215=Meer	**BP300**=Anthrazit
BP540=Ozean	**BP426**=Schwarz

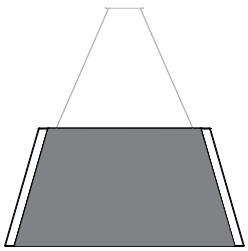
Notes
Selection for BOX bottom panel color. See diagram on page 3 for clarification.

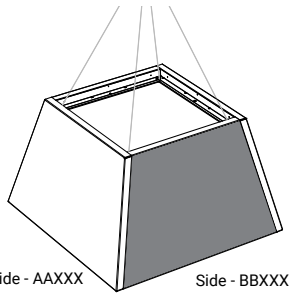
Ordering Information

- 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.

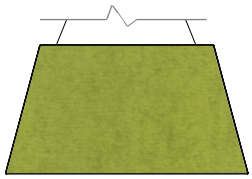
Select AAXXX for Side Panel + Color Selection from chart.
Select BBXXX for Side Panel + Color Selection from chart.
XXX = 3 digit code from FilzFelt color chart options (see below).

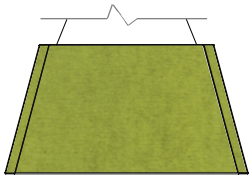

Side - AAXXX


Side - BBXXX

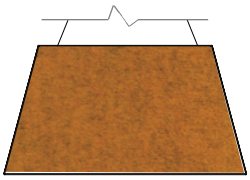

Side - AAXXX Side - BBXXX

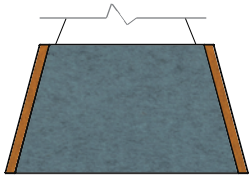
EXAMPLE OF MONO-TONE - Side AA = 713 and Side BB = 713 Kiwi


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 Erröten	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

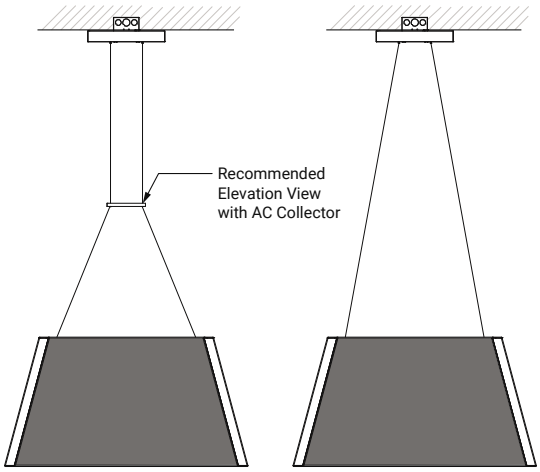
Acoustic Material Maintenance: Cleaning and Health Features

- 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.

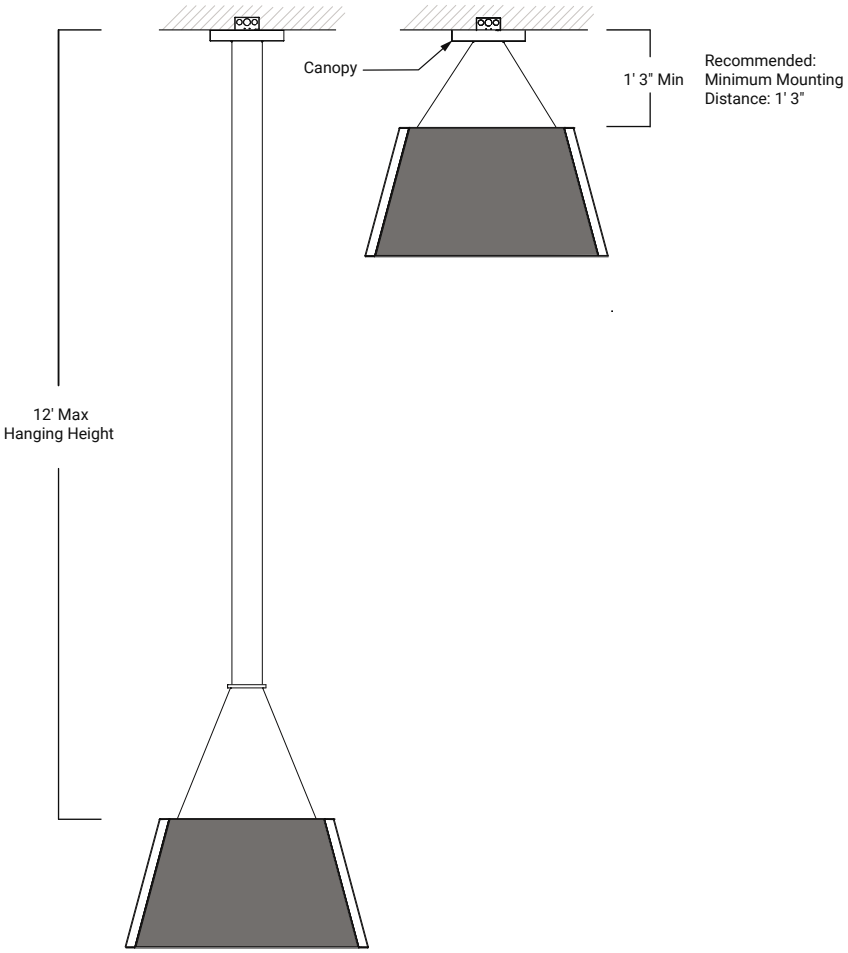
	Felt	Acoustic Substrate
General Cleaning	Vacuum occasionally to remove general air- borne debris. Spot clean with a mild enzyme- based detergent (such as Tide Free) and water solution. Avoid aggressive rubbing as this can continue the felting process and change the surface appearance of the felt.	Vacuum 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

Collector is recommended but not required



Maximum and Minimum Hanging Heights



Photometric Data

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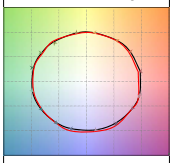
Test No.	P316062		
Lumcat	ShSe-TRAP-2-L30-90-UNV-STD	TM-30-15	
Lumens	3181 Lm	R_f	91.7
Watts	38.8 W	R_g	99.7
LPW	82 Lm/W	59% up 41% down	
CCT	3000K		
SC (0/90/45)	2.4 / 1.51 / 1.84		

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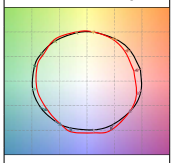
Test No.	P316063		
Lumcat	ShSe-TRAP-2-L35-80-UNV-STD	TM-30-15	
Lumens	3955 Lm	R_f	81
Watts	38.8 W	R_g	95.9
LPW	101.9 Lm/W	59% up 41% down	
CCT	3500K		
SC (0/90/45)	2.4 / 1.51 / 1.84		

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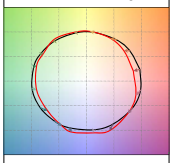
Test No.	P316064		
Lumcat	ShSe-TRAP-2-L40-80-UNV-STD	TM-30-15	
Lumens	3884 Lm	R_f	81
Watts	38.8 W	R_g	95.9
LPW	100.1 Lm/W	59% up 41% down	
CCT	4000K		
SC (0/90/45)	2.4 / 1.51 / 1.84		

Lumen Maintenance

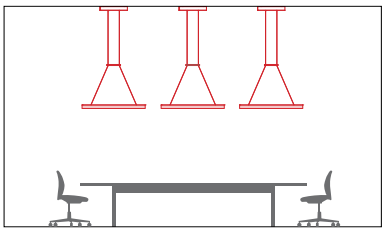
Ambient Temperature	Lumen Maintenance: TM-21 (60,000 Hours)	Theoretical L70 (Hours)
25°C	> 89%	> 60,000

Accoustic Analysis - Reverberation Decrease

Reverberation Time example. Acoustic test reports available by request.

RT60 : Light Fixtures without sound absorption

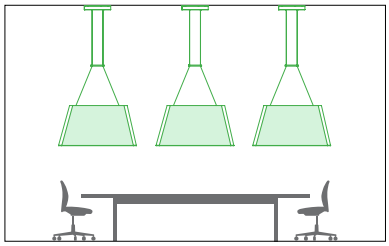
Frequency (Hz)						Avg
125	250	500	1000	2000	4000	250-2k
0.76	0.97	1.15	1.11	0.91	0.85	1.04



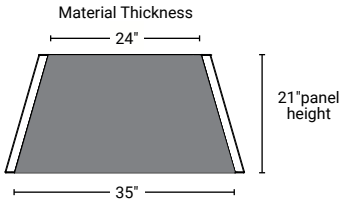
6 fixture comparison

RT60 : Light Fixtures with sound absorption

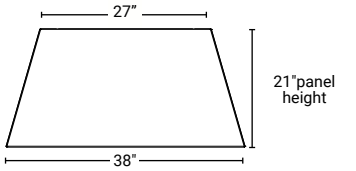
Frequency (Hz)						Avg
125	250	500	1000	2000	4000	250-2k
0.64	0.75	0.68	0.6	0.53	0.52	0.64



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.



Acoustic panel thickness is 1.49" thick. Two sides of the panels are 24"L x 35"W x 21"H and 1.49" deep.

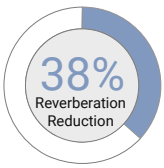


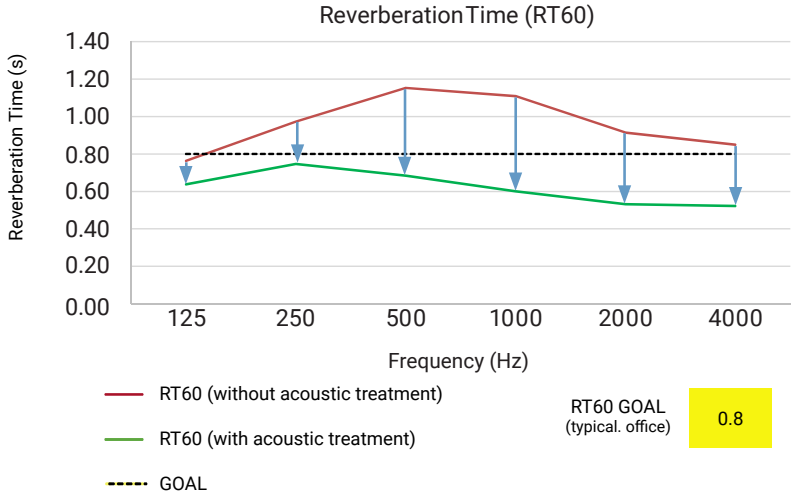
Acoustic panel thickness is 1.49" thick. Two sides of the panels are 27"L x 38"W x 21"H and 1.49" deep.

% 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.

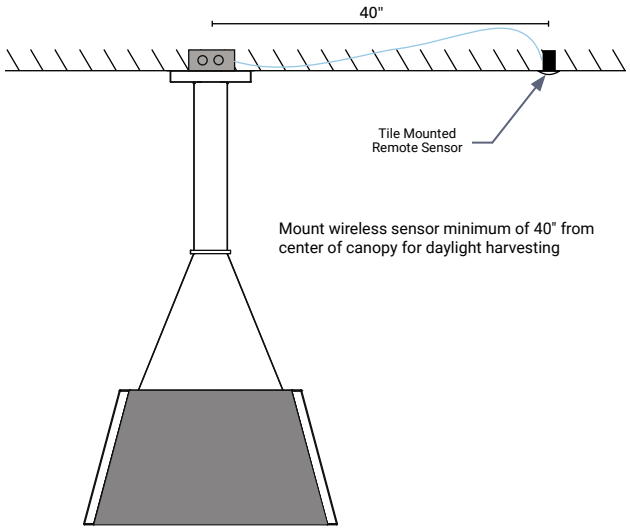
Product Family	Occupancy Technology	Sensing Technology	Coverage Pattern
SWT = WaveLinx Wireless Sensor **LWT** = LumaWatt Pro Wireless Sensor	**P** = Passive Infrared	**D** = Dimming Daylight Harvesting (Closed Loop)	**1** = ~ 144 Square Feet

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.

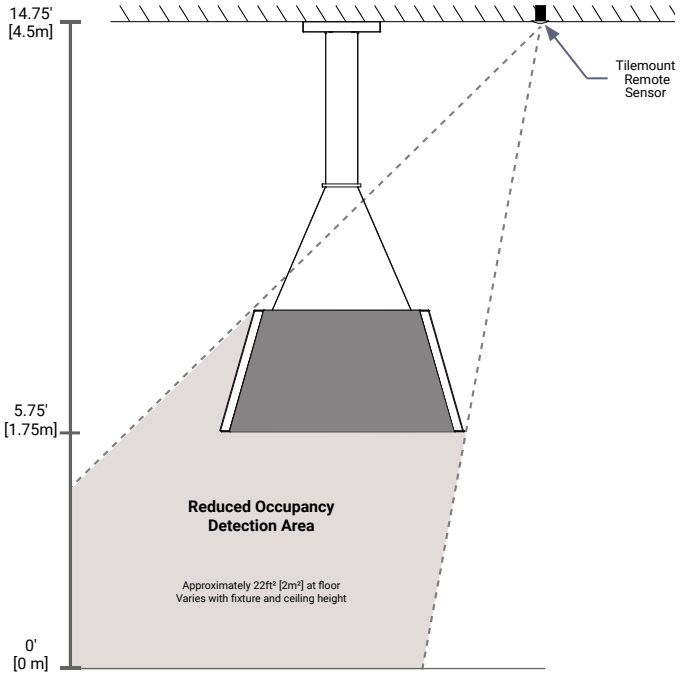
LumaWatt Pro
The LumaWatt Pro Tilemount sensor option is field installed to a single luminaire's junction box or daisy chained to a group of luminaires, providing lighting control and sensing in an independent, fault-proof, resilient network of powerful end-points. Sensors have profiles stored internally 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

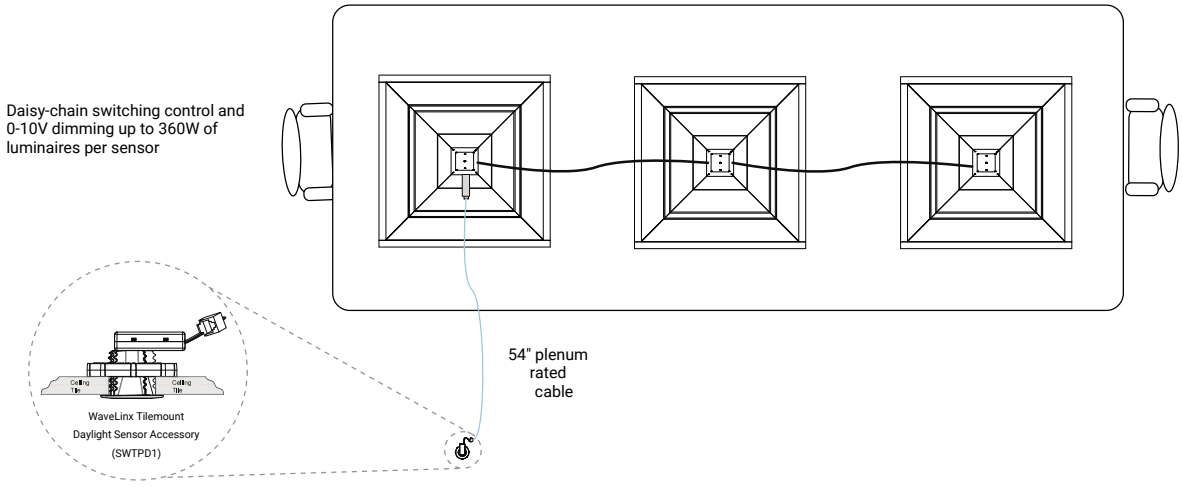
Daylight Harvesting - Recommended mounting



Occupancy Detection - Coverage



Wireless Sensor Example Layout



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Specifications and dimensions
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