

***THE GUIDELINES AS DESCRIBED HEREIN ARE PROVIDED FOR GENERAL INFORMATION ONLY AND DO NOT IN ANY WAY CONSTITUTE A LIGHTING SPECIFICATION.***

***ALL LIGHTING SPECIFICATIONS SHOULD BE PROVIDED BY A LIGHTING DESIGN PROFESSIONAL.***

1. INTRODUCTION
2. CONSTRUCTION
3. FIXTURES INSTALLATION
4. MEMBRANES
5. LIGHT TRANSMISSION
6. PENETRATIONS
7. CLEANING
8. ACCESSIBILITY



**I. INTRODUCTION**

The functional and aesthetic success of a NEW/LIGHT backlit installation is **entirely** related to the design and specification of the lighting sources behind the NEW/LIGHT membranes.

**II. CONSTRUCTION**

NEW/LIGHT backlit applications may vary in the design and construction of the perimeter of the backlit area. Various options for same include the following: drywall coffers, free-floating light boxes, free-floating panels/clouds, wall-to-wall ceilings, prefabricated panels, etc. **Please note that for all horizontal installations, you must use a 2-layer system. The upper layer’s main function is to act as a dust barrier and therefore can be a clear layer\*. However, if you do not have enough plenum depth, or enough fixtures to get an even lighting/glow, the upper layer can be translucent as well for added diffusion.**

(\*Note: When using a clear upper layer, the seams in same must be placed perpendicular to the light source if the light source is either fluorescent, pipe light, neon, or cold cathode. When using LED’s as a light source, it is not recommended to use a T10-132/Clear wide width upper layer /dust barrier unless the area is less than 11 feet in width. Areas wider than 11 feet will require the use of the T11/clear frosted layer/ dust barrier).

A. Drywall coffers:

The entire space inside the coffer must be painted bright white for maximum light reflection. The plenum above the NEW/LIGHT membrane should be vented in order not to exceed the recommended maximum temperature for the fixtures, ballasts, and lamps. The coffer perimeter must be constructed to withstand 50 lbs of lateral tension per linear foot of perimeter, which the 2 layers of membrane will exert.

B. Free floating light boxes:

The entire space inside the box must be painted bright white for maximum light reflection. The plenum above the NEW/LIGHT membrane should be vented in order not to exceed the recommended maximum temperature for the fixtures, ballasts, and lamps. The box perimeter must be constructed to withstand 50 lbs of lateral tension per linear foot of perimeter, which the 2 layers of membrane will exert.

1. Free-floating panels/clouds:

The perimeter frame for these types of panels may be constructed of steel, aluminum, etc. and/or use an existing or custom fabricated NEWMAT extrusion. Depending on size and configuration, cross-bracing may be required. Please contact us to help you design the perimeter of your application to be technically sound, aesthetically acceptable, and in line with your design intent.

1. Wall-to-wall ceilings:

The entire space above the ceiling must be painted bright white for maximum light reflection. The plenum above NEW/LIGHT membrane should be vented in order not to exceed the recommended maximum temperature for the fixtures, ballasts, and lamps. The walls must be constructed to withstand 50 lbs. of lateral tension per linear foot of perimeter, which the 2 layers of membrane will exert.

1. Prefabricated panels:

Various perimeter options are available for this type of system as well as various suspension designs. Please contact us to help you design the perimeter of your panels and a suspension system to be technically sound, aesthetically acceptable, and in line with your design intent.

**III. FIXTURES INSTALLATION**

Many types of light sources can be used to backlight NEW/LIGHT application, which includes but is not limited to: fluorescents, cold cathodes, neon, LED\*, pipe light, fiber optics, etc. Most applications today use LED fixtures, and because LED fixtures greatly vary from one manufacturer / system to another, we strongly recommend that you do a mock-up of your configuration with the exact LED fixture you will be using to determine the necessary depth of your cavity and the lighting layout of your LED fixtures.

\*Note: When using LED’s as a light source, it is not recommended to use a T10-132/Clear wide width upper layer/dust barrier unless the area is less than 11 feet in width. Areas wider than 11 feet will require a factory seam in the clear membrane, which may cast a shadow on the bottom / visible layer.

Below are some guidelines for the installation of fluorescent fixtures:

A. Attachment:

Fixtures must be attached to the drywall, plywood, strut, etc. support, using anchors and method consistent with the fixture manufacturer’s recommendations.

1. Spacing:

Fixtures should be placed on an average of one-to-one ratio distance from the bottom NEW/LIGHT membrane. Following are a few examples of successful combinations:

* A double layer of NEW/LIGHT T0B2 membranes where the bottom layer is 7” away from the fixtures will need fixtures with T5 lamps without reflectors 6” on center.
* A double layer of NEW/LIGHT T0B membranes where the bottom layer is 9” away from the fixtures will need fixtures with T5 lamps with reflectors 6” on center.
* A double layer of NEW/LIGHT T0B membranes where the bottom layer is 12” away from the fixtures will need fixtures with T5 lamps without reflectors 12” on center.
* A double layer of NEW/LIGHT T0B and T10-132 membranes where the bottom layer is 18” away from the fixtures will need fixtures with T5 lamps with reflectors 12” on center.

1. Overlap:

The fixtures should be staggered and/or overlapped by approximately 6” to eliminate the risk of socket shadows.

1. Lamps:

All lamps should be identical and preferably from one production batch to avoid different hues/tints, which would transmit through the NEW/LIGHT membranes. The lamps should be burned in for the manufacturer’s recommended period/time before the NEW/LIGHT membranes’ installation.

When using LED fixtures, we personally like to work with the TLS (Tension LED System), and below are some instructions on the installation of same.

**IV.** **MEMBRANES**

NEWMAT offers a variety of NEW/LIGHT membranes listed below:

T0B / White translucent

T0B132/ White translucent wide width

T0B2 / White opalescent

T0B3S / Soft-white translucent satin finish

T0B3M /Soft-white translucent matte finish

T0B33006 / Boreal

T0B4 / Warm white translucent

T0B5 / Thick warm white translucent

T0B6 / Semi-transparent

T1 / Natural

T3 / Blue

T4 / Green

T10-132 / Clear wide width\*

T11/ Clear frosted\*\*

TX03 / Extra wide white translucent

Notes:

\*The T10-132 / clear wide width membrane is mostly used as a dust barrier / upper layer since it has small imperfections that may not be acceptable as a bottom / visible layer. However, when using LED’s as a light source, it is not recommended to use a T10-132/clear wide with upper layer / dust barrier unless the area is less than 11 feet in width. Areas wider than 11 feet will require a factory seam in the clear membrane, which may cast a shadow on the bottom / visible layer.

\*\*Therefore, for the latter type of application we recommend the use of the T11 / clear frosted membrane in lieu of the T10-132 for the upper layer / dust barrier.

Please choose your membrane, or combination of membranes, to achieve your lighting design and transmission intent.

**V. LIGHT TRANSMISSION**

Please find below the results of the NEWMAT test of light transmission of the various translucent membranes available as of September 1, 2017.

The test procedure is as follows:

1. We build a 12” deep light box with all inside sides painted white gloss
2. We install lighting fixtures 6” on center (2 to 1 ratio)
3. We place the box inside a dark room so that the testing is more accurate
4. We take the measurement of light without membrane as follows: center of light box at 0”, then 24”, 36”, then 53”
5. We stretch each membrane (single layer)
6. We repeat the measurement of light with each membrane as indicated above
7. We calculate the difference between measurements item 4 and measurements item 6
8. We calculate the average between the 24” and 36”, and then between the 24”, 36” and 53”, which are all the numbers you will see below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Light Transmission Testing on NEWMAT Translucent Membranes** | | | | | | |
|  | at 0" | A) at 24" | B) at 36" | C) at 53" | Average  A - C | Average  A - B - C |
| Without membrane | 7130 | 1546 | 798 | 541 | 1043.5 | 962 |
|  |  |  |  |  |  |  |
| T0B | 5750 | 797 | 458 | 303 | 550 | 519 |
| Transmission | 81% | 52% | 57% | 56% | 53% | 54% |
| T0B 1320 | 6150 | 979 | 507 | 335 | 657 | 607 |
| Transmission | 86% | 63% | 64% | 62% | 63% | 63% |
| T0B2 | 5850 | 958 | 445 | 297 | 627.5 | 567 |
| Transmission | 82% | 62% | 56% | 55% | 60% | 59% |
| T0B 3M | 6100 | 959 | 484 | 320 | 639.5 | 588 |
| Transmission | 86% | 62% | 61% | 59% | 61% | 61% |
| T0B 3S | 5970 | 930 | 480 | 317 | 623.5 | 576 |
| Transmission | 84% | 60% | 60% | 59% | 60% | 60% |
| T0B 33006 Boréal | 6030 | 955 | 492 | 322 | 638.5 | 590 |
| Transmission | 85% | 62% | 62% | 60% | 61% | 61% |
| T0B4 | 5650 | 913 | 458 | 292 | 602.5 | 554 |
| Transmission | 79% | 59% | 57% | 54% | 58% | 58% |
| T0B5 | 5990 | 986 | 506 | 331 | 658.5 | 608 |
| Transmission | 84% | 64% | 63% | 61% | 63% | 63% |
| T0B6 | 6410 | 1203 | 629 | 418 | 810.5 | 750 |
| Transmission | 90% | 78% | 79% | 77% | 78% | 78% |
| T1 | 6650 | 1429 | 752 | 497 | 963 | 893 |
| Transmission | 93% | 92% | 94% | 92% | 92% | 93% |
| T10-1320 | 6820 | 1484 | 766 | 506 | 995 | 919 |
| Transmission | 96% | 96% | 96% | 94% | 95% | 96% |
| T11 | 6640 | 1461 | 764 | 505 | 983 | 910 |
| Transmission | 93% | 95% | 96% | 93% | 94% | 95% |
| T3 | 3500 | 646 | 331 | 211 | 428.5 | 396 |
| Transmission | 49% | 42% | 41% | 39% | 41% | 41% |
| T4 | 5190 | 908 | 470 | 306 | 607 | 561 |
| Transmission | 73% | 59% | 59% | 57% | 58% | 58% |
| TX03 | 5800 | 926 | 460 | 295 | 610.5 | 560 |
| Transmission | 81% | 60% | 58% | 55% | 59% | 58% |

The above-referenced test results are provided for general information only. NEWMAT USA is not a lighting expert. Please have your lighting designer make his own evaluation/testing.

**VI. PENETRATIONS**

Penetrations for sprinkler heads, HVAC registers, etc. can be made in a NEW/LIGHT system. However, the pipe, duct, and/or support for such penetrations must be painted white to minimize the shadow from same.

**VII. CLEANING**

Before cleaning any ceiling membrane, it is important to know the nature of the soil. If the membrane is covered with only a small film of dust, you can use either a feather duster or a compressor and just blow the membrane evenly. If you try to use a micro-fiber towel with or without a cleaning product, you could make the situation worse. If the ceiling membrane has any soil other than dust, please clean it with a micro-fiber towel only, according the chart below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| cleaning  solution  nature  of soil | household cleaner such as fantastic, SPRAY 9, etc. | industrial cleaner mixeD in warm water | denatured alcohol or mineral spirit | tee off |
| Dirt | **X** | **X** |  |  |
| Grease/  Tar |  | **X** | **X** |  |
| Paint |  |  | **X** |  |
| Crayon |  |  | **X** |  |
| Nicotine | **X** | **X** |  |  |
| Glue Residue |  |  | **X** |  |
| Soot |  |  |  | **X** |

The above is for a spot cleaning option. If you have a membrane that needs to be cleaned entirely, then contact us and, depending on the finish of the membrane and the nature of the soil, we will give you the best option for same.

**VIII. ACCESSIBILITY**

For every maintenance procedure below, we recommend doing the work with very clean hands in order to not damage the panels and/or the membrane.

1. Field stretched wall-to-wall system

The harpoon (on the perimeter of the ceiling membrane) can be removed from the profile on a portion as large or as small as necessary to allow access to the plenum and mechanicals. Using heat, the harpoon can then be reinserted in the profile to close the ceiling. This procedure should always be performed by a certified NEWMAT installer, or by a maintenance personnel who has been trained by NEWMAT for accessibility.

1. Custom fabricated pre-stretched panels
   1. Drop-in panels: For this type of system the panels can be removed and/or reinstalled by just tilting them to fit in a grid opening and then letting them rest in the grid.
   2. Torsion spring panels: For this type of system, you must follow the procedure below.
      1. Insert release tool if needed on one side of the panel, which has the springs as shown. The number of springs on one side will vary from two (2) to five (5) depending on the size of the panels, but they are always on the two (2) opposite long sides.
      2. Pull down with the tool first, then by hand so that the entire side is in a down position with the springs completely extended as shown.
      3. Pull down the other side by hand so that the full panel is in a down position and all springs are completely extended.
      4. Release the springs on one side only by pinching them and sliding them out through the slot as shown, and lay the springs on top of the panel.
      5. Let the panel rotate down gently so that it hinges on the remaining springs from the other side. Now the panel is vertical and allows you access to the plenum above same.
      6. Rotate the panel back in a horizontal position and while holding it, insert the springs back into their position by pinching them and sliding them back through their slot.
      7. When all the springs are back into their slot, push the panel back up and the springs will snap it back into its up position.
   3. Pivot Panels: To access the pivot panel system, you need to push up on the latch side to release the panel down, or if it is a quarter-turn screw latch, then insert a small screw driver in the slot and release the latch that way. The panel will rotate on its pivot point; make sure that you hold the panel down as it is rotating – do not let the panel rotate freely or it could get damaged. To reinstall, rotate the panel back and either push it up on the latch side for the latch to engage again or use the small screw driver for the quarter-turn screw option.