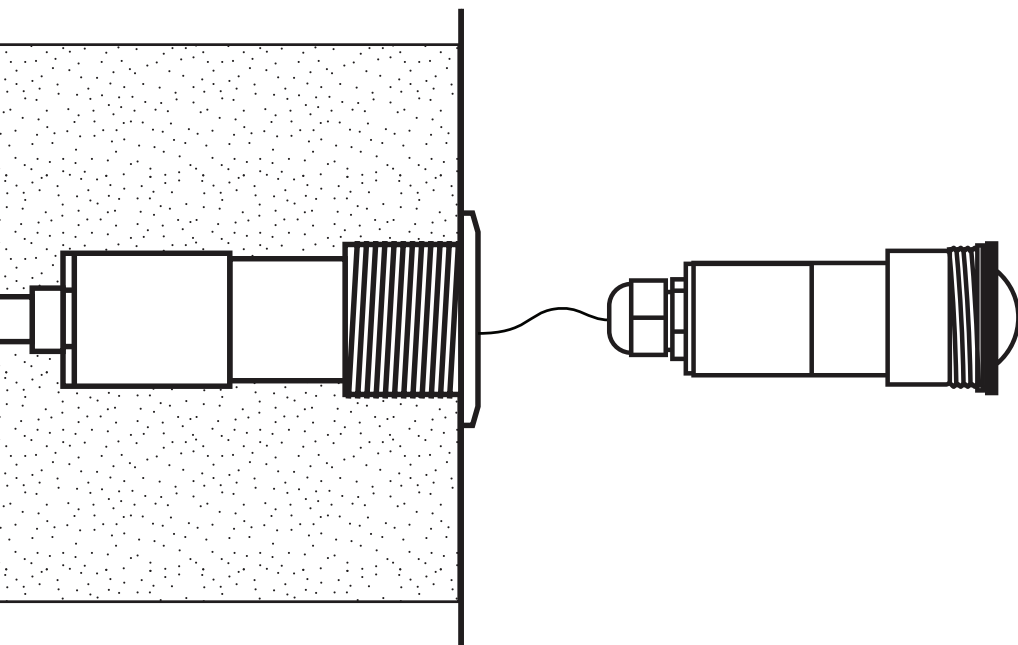


NICHELESS UNDERWATER LED LIGHTS

Lighting Design Guide

⚠ WARNING

FOR YOUR SAFETY — This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. In the event no such state or local requirements exist, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or loss of life. Improper installation and/or operation will void this warranty.



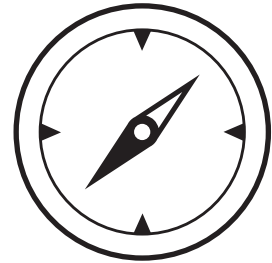
LIGHTING DESIGN GUIDE

Lighting adds drama to any pool and spa. Proper light placement plays a big part in maximizing beauty and safety, and following some industry guidelines ensures you're getting the optimum lighting effect for your customers.

In this guide, we'll cover **what to keep in mind before you install pool lights** to get the most out of the installation.

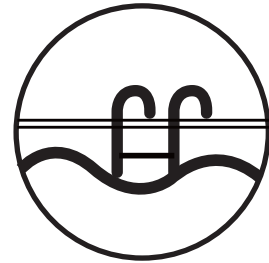
1. GENERAL DESIGN

In this section, we'll cover the basics of light design and installation. What follows are best practices for the most effective pool and spa lighting.



ORIENTATION

- » Whenever possible, position light fixture so the **beam is directed away from the house.**
 - » For example, **if the pool is perpendicular to the house**, place lights on either side of the pool.
 - » **If the pool is parallel to the home**, place the lights on the house side facing away so that the homeowner and guests are not looking directly into the beams of light.
- » Use multiple lights along a side of the pool not facing the house **to obtain an even distribution of light** throughout the pool.



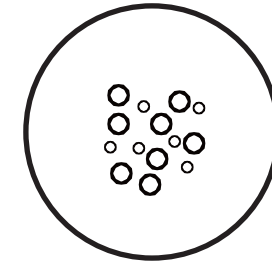
PLACEMENT

- » In the deep and shallow ends, **lights should be placed 9"-12" below the water** so that all pool lights are even on the wall.
- » Lights in sun shelves/baja benches should be positioned **4" below water level.**
- » Lights in spas should be **placed below the bench or in the foot well.**



USE

- » For fitness use: **lap pools should always be lit from the side** so swimmers don't swim into the light's beam.
- » For family use: be sure to **light all safety areas** such as pool steps, entrances and exits.
- » For aesthetics: **keep lights flush with the wall of the pool in an inlet fitting that is 1½" in diameter.** Our White-Only nicheless lights are dimmable for customized brightness.



FINISH

- » For light to medium pool finishes we recommend color lights as follows:
 - » **Distance of coverage 16' and under, go with 20W color lights.**
 - » **Distance of coverage over 16' and up to 22', go with 30W color lights.**
- » For dark finishes, **use the White-Only lights** as the colors from the colored lights will be absorbed by the finish.

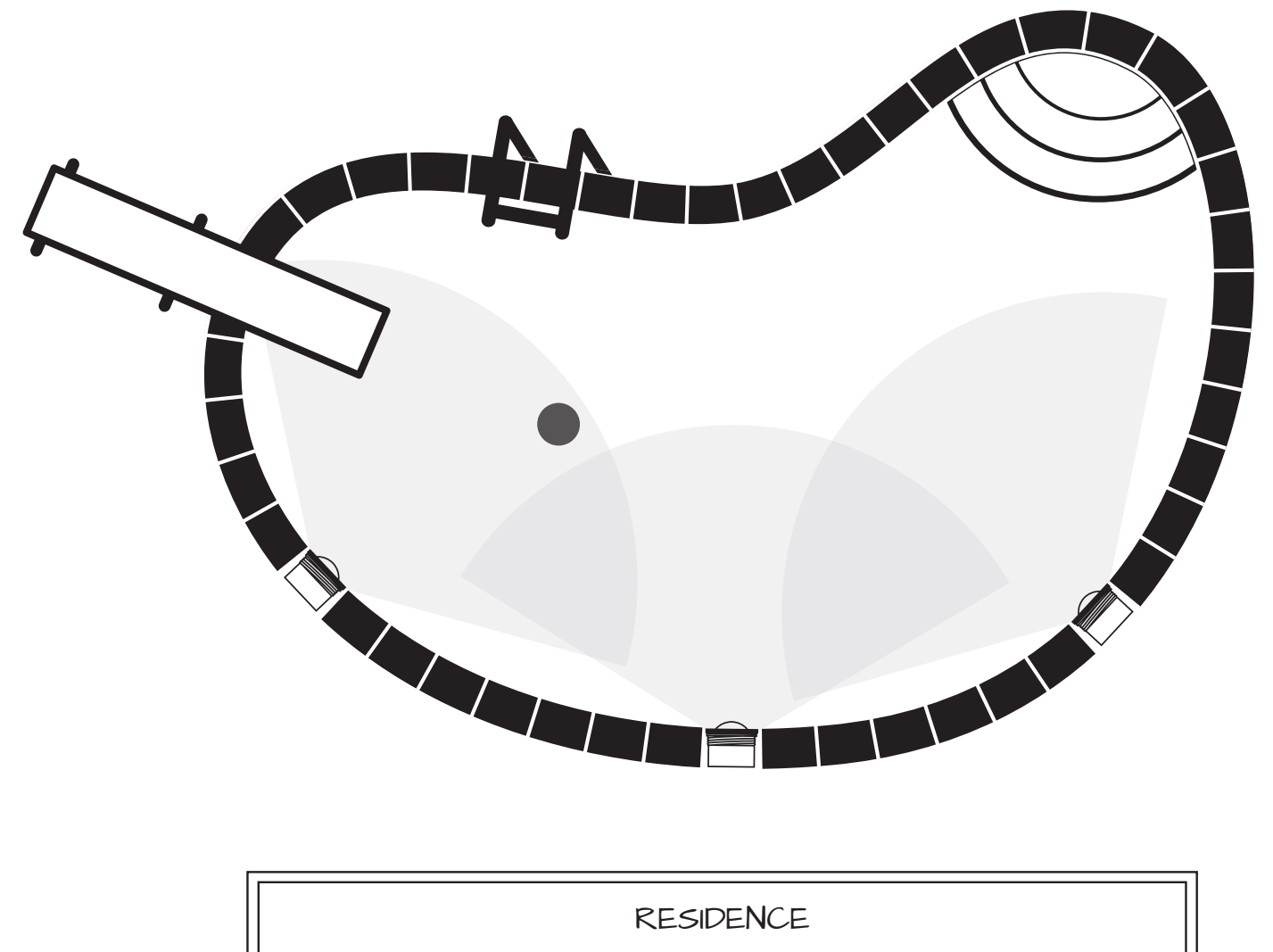
1. GENERAL DESIGN

Continued — Below are rules of thumb for the number of lights by the square footage of the pool with the main determining factor the lightness or darkness of the finish.

RECOMMENDED LIGHT COVERAGE PER SQUARE FOOT

(1 light per sq. ft. below)

| Description | Power (Watts) | Square Footage* |
|---|---------------|-----------------|
| Light Finish Colored Lighting Specs | 9 | 125 – 165 |
| | 20 | 165 – 215 |
| | 30 | 215 – 260 |
| Medium Finish Colored Lighting Specs | 9 | 100 – 135 |
| | 20 | 135 – 175 |
| | 30 | 175 – 225 |
| Dark Finish White Lighting Specs To get best reflective illumination in dark finish pools, go with white (dimmable) lights. White is at least twice the brightness of color by size. | 9 | 100 – 135 |
| | 20 | 135 – 175 |
| | 30 | 175 – 225 |



LIGHT FINISH = WHITE PLASTER OR WHITE MARCITE

MEDIUM FINISH = LIGHT BASE PLASTER WITH MEDIUM-COLORED PEBBLES (BLUE PEBBLES, LIGHT GREEN, ETC.)

DARK FINISH = BLUE/GRAY BASE PLASTER WITH DARK PEBBLES (TAHOE BLUE, FRENCH GRAY, BLACK SATIN)

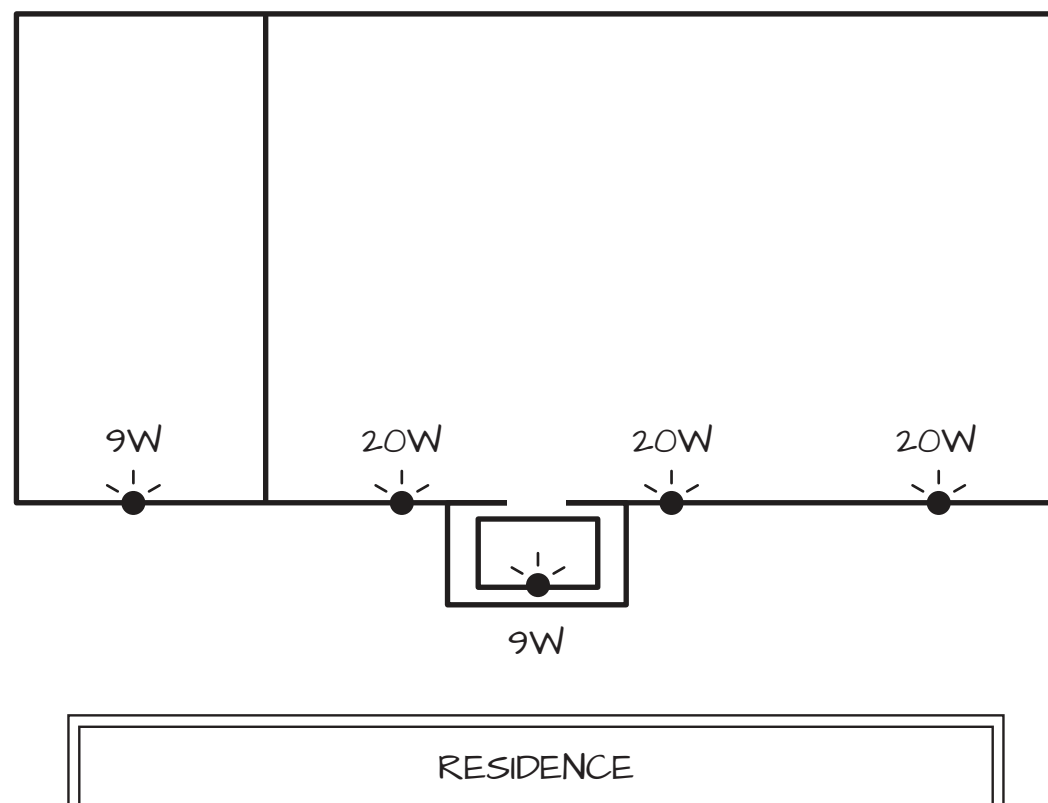
*Square footage numbers are recommendations and not requirements.

2. EXAMPLE CONFIGURATIONS

Below we include the most common pool and spa configurations you'll encounter on your projects along with the recommended number of lights and ideal placement for even illumination.

16' X 32' POOL 8' BAJA SHELF • SPA

For standard geometric pools, there are two basic options in lighting design - fewer lights but more wattage, or additional lights at less wattage.

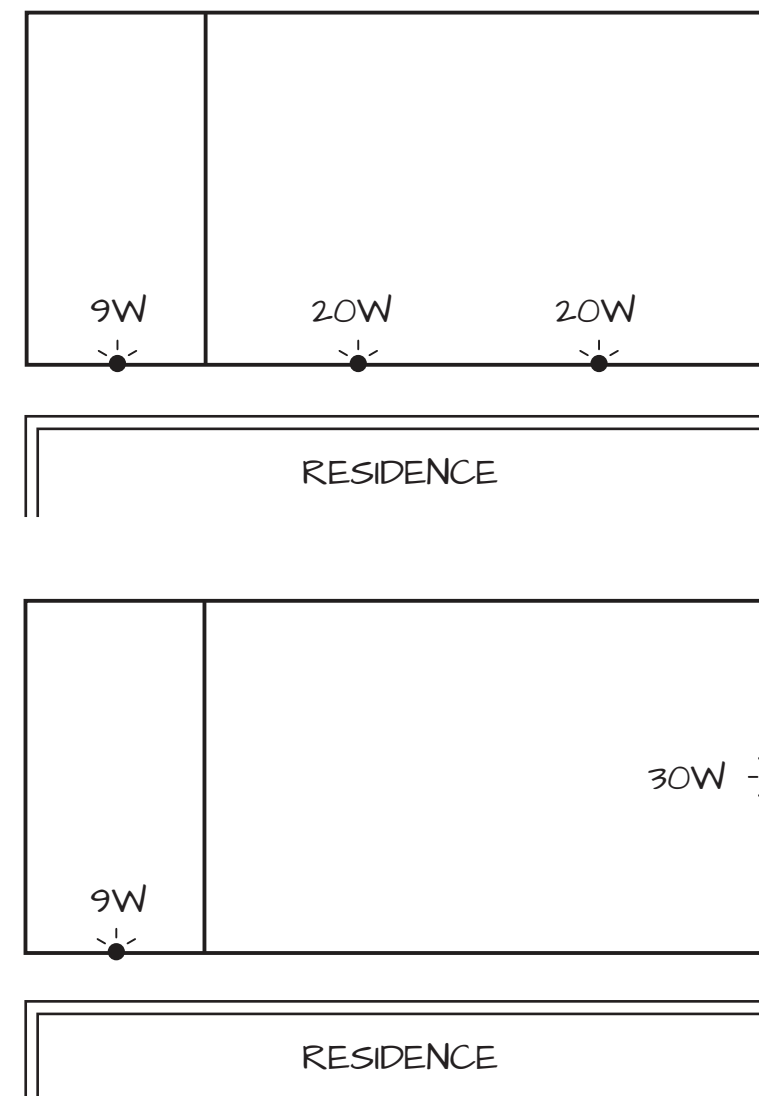


LIGHT FINISH = COLOR 20W

MEDIUM FINISH = COLOR 30W / WHITE 20W

DARK FINISH = WHITE 20W

16' X 32' POOL 8' BAJA SHELF



LIGHT FINISH = COLOR 20W

MEDIUM FINISH = COLOR 30W / WHITE 20W

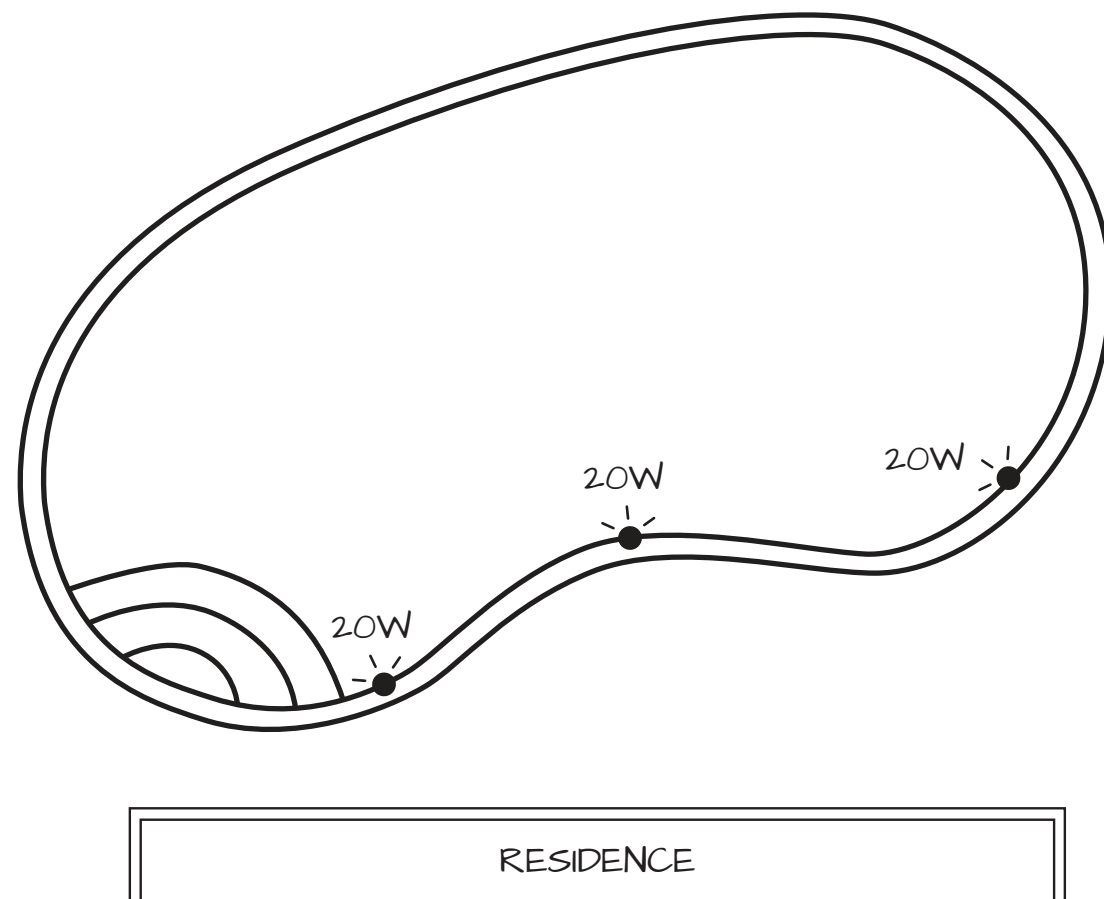
DARK FINISH = WHITE 20W

2. EXAMPLE CONFIGURATIONS

Continued

18' X 38' KIDNEY

These custom configurations show two options for light placement. The one at left demonstrates light installation for less illumination but more even light distribution.

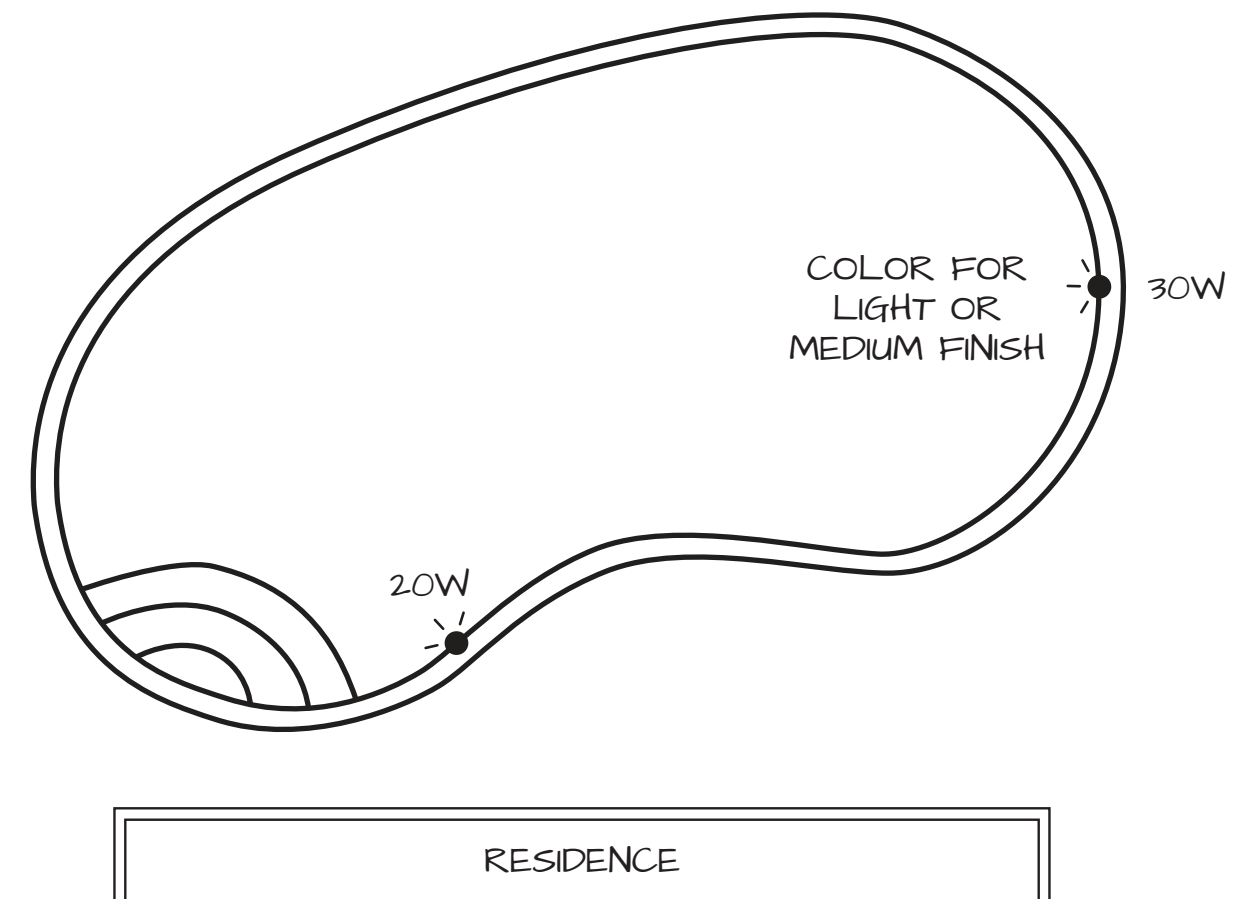


LIGHT FINISH = COLOR 20W

MEDIUM FINISH = COLOR 30W

DARK FINISH = WHITE 30W

18' X 38' KIDNEY



LIGHT FINISH = 30W COLOR

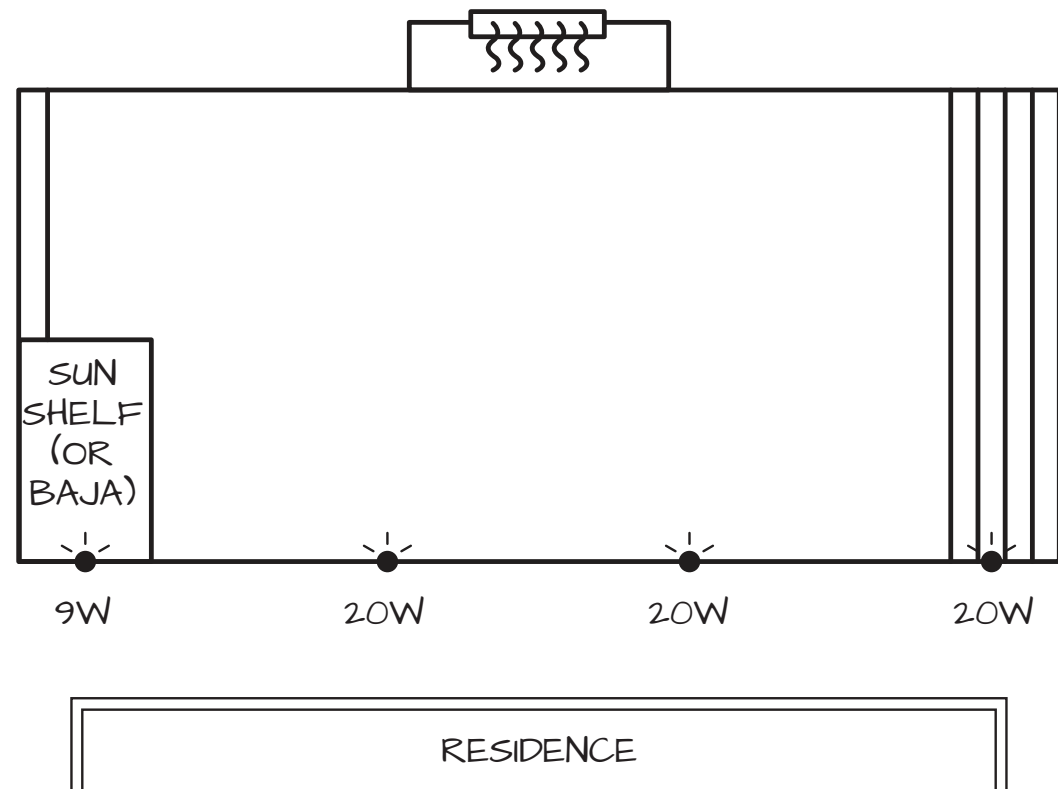
MEDIUM FINISH = 30W COLOR

DARK FINISH = 30W WHITE (RH SIDE), 20W WHITE (LH SIDE)

2. EXAMPLE CONFIGURATIONS

Continued

18' X 36' POOL

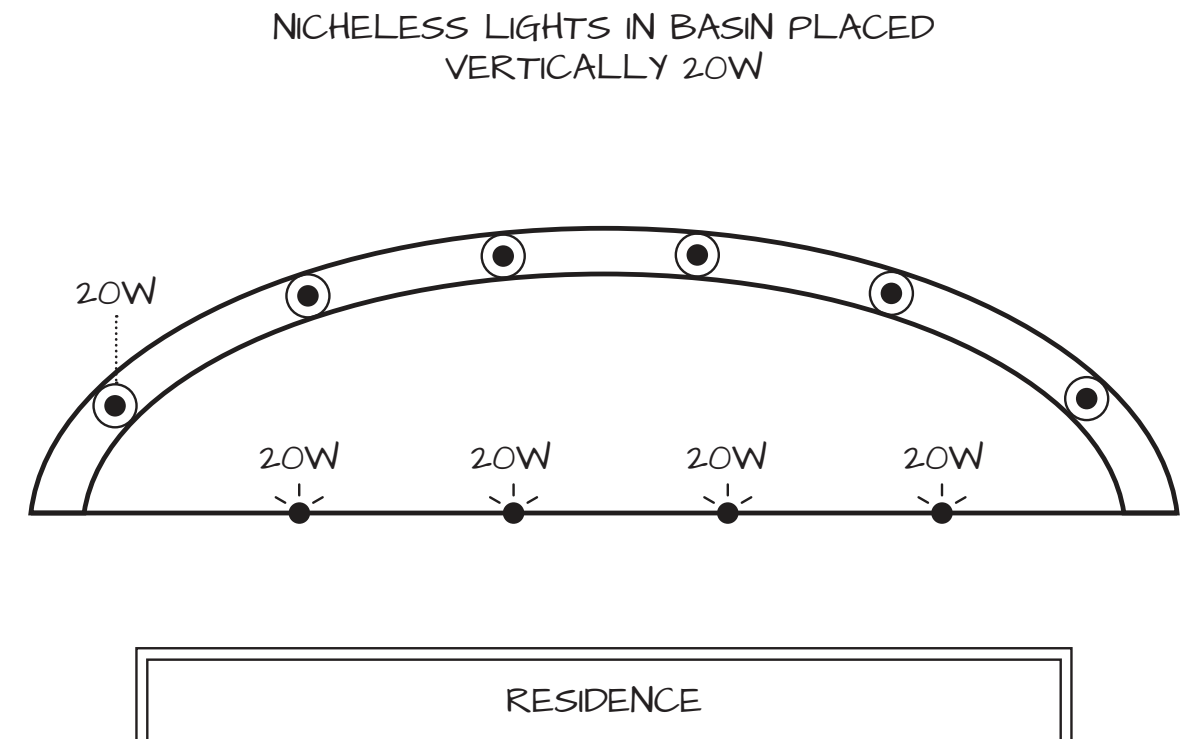


LIGHT FINISH = COLOR OR WHITE 20W

MEDIUM FINISH = COLOR 30W

DARK FINISH = WHITE-ONLY 20W

40' VANISHING EDGE POOL



LIGHT FINISH = COLOR 20W

MEDIUM FINISH = COLOR 30W

DARK FINISH = WHITE-ONLY 30W

3. DOS AND DON'TS

Here we list general rules of thumb for optimum pool and spa lighting. Please note that what to do is as important as what not to do.



DOS



DIRECTION—Make sure lights (beams) are shining away from the house.



SAFETY—Always light the safety areas (steps, pool entrance and exit).



WATERFALLS—All X-Stream Waterfalls (lit with fiber) are lit with 30W light drivers and are best with color or white LED drivers. You can choose a color or white driver depending on how you are lighting the pool. **White will always be the brightest.**



BUBBLERS—Are best placed in open areas, such as baja shelves.



LAP POOLS—Always light lap pools by placing all lights on the long wall, and facing away from the house.



DARK SPOTS—Try to eliminate dark spots/blind spots in areas caused by design of the pool. Generally it is better to install more lower wattage lights than fewer higher wattage lights. Adding more lights helps create an even glow.



BENCH—If you have a bench that runs along the length of the pool, install a light 6" below the bench to reduce shadows.



CIRCUIT—Make sure all lights are on the same on/off circuit. If you are synchronizing lights, this is very important.



DON'TS



DARK FINISH POOLS—Don't use color lights in dark finish pools. Dimmable white lights deliver twice the brightness by size.



TESTING LIGHTS—Don't test lights with line voltage. Our lights are low-voltage and must be attached to 12V in the transformer. Read the instructions with the transformer to ensure you are using 12V.



TRANSFORMER—Make sure you use the proper transformer. For instance, don't put (5) 20W lights on a 100W transformer. There is no safety factor on the transformer for electrical surges. Instead, go with a 300W transformer that has extra "room" for surges. Use only a transformer that has been certified by a Nationally Recognized Testing Laboratory (NRTL) as complying with the applicable requirements of UL 379 — The Standard for Power Units for Fountain, Swimming Pool, and Spa Luminaires.



BENCH—If a bench is located on the side of the pool where it's recommended pool lights be installed, be sure to locate the lights 6" below the bench. This will ensure that floor shadows are reduced.



BUBBLERS—Don't place bubblers in corners, three sided boxes, or close together. The back splash from the wall will create turbulence and affect the form of the water plume.



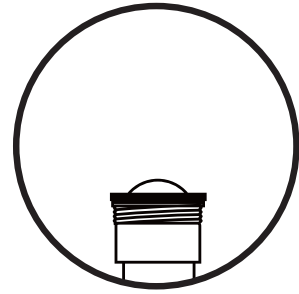
WATTAGE—Keep a wattage safety factor of 15%.



LIGHTS ON SUN SHELVES/BAJA SHELVES—Locate lights so that they are at least 4" below water level.

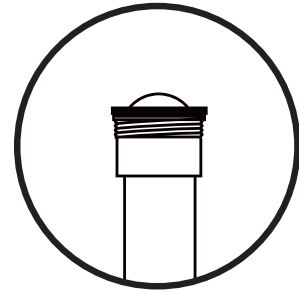
4. RECOMMENDED APPLICATIONS

What follows are our lighting design expert's recommendations for which light size and type is best for specific applications.



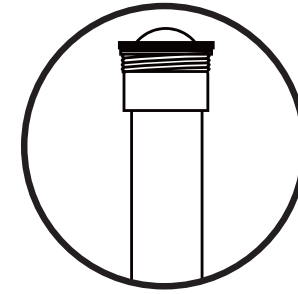
9W LIGHTS

- » 9W lights are **best for small spas and sun shelves** (baja benches).



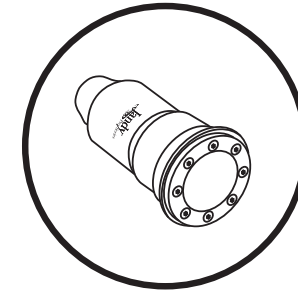
20W LIGHTS

- » 20W lights are **best for even distribution of light along the pool's surface.**



30W LIGHTS

- » 30W lights are **best for smaller pools** where you have one light in the pool underneath the diving board.

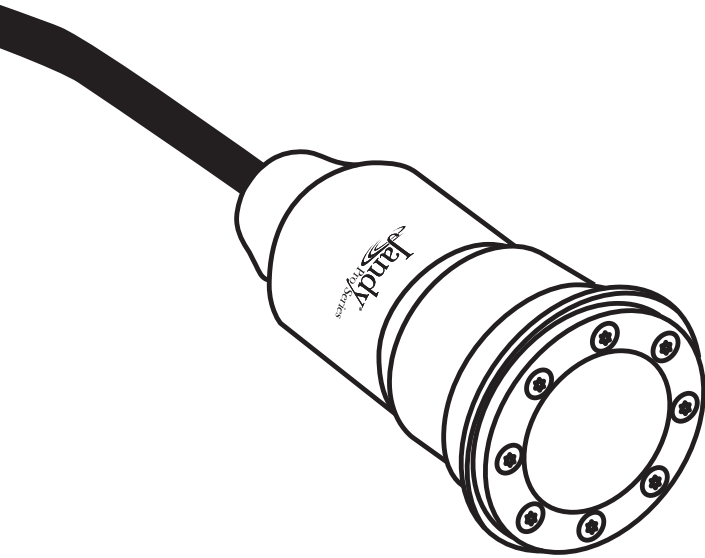


SPA LIGHTS

- » **Spa lights always go below the bench** (the foot well). Avoid placing lights over a bench in the pool areas because that placement will stop the light from reflecting on the pool's surface.
- » If there is a bench that runs alongside the length of the pool and it is on the house side, please make sure that those lights are placed below the bench. Benches will go down 12"–18" below the water's surface, so if the lights have to be placed at 24" in this scenario, that's OK. **For sun shelves or baja shelves**, position the lights halfway down and at least 4" below water level. Most sun shelves are 8" to 12" below water.

4. RECOMMENDED APPLICATIONS

Continued



TECHNICAL DETAILS

| Description | Power (Watts) | 50' Cord | 100' Cord | 150' Cord |
|---|---------------|------------|-------------|-------------|
| RGBW Watercolors Jandy® Pro Series Nine Fixed Colors & Five Color Shows For use with Jandy Automation | 9 | JLU4C9W50 | JLU4C9W100 | JLU4C9W150 |
| | 20 | JLU4C20W50 | JLU4C20W100 | JLU4C20W150 |
| | 30 | JLU4C30W50 | JLU4C30W100 | JLU4C30W150 |
| White Jandy Pro Series White-Only lights | 9 | JLUW9W50 | JLUW9W100 | JLUW9W150 |
| | 20 | JLUW20W50 | JLUW20W100 | JLUW20W150 |
| | 30 | JLUW30W50 | JLUW30W100 | JLUW30W150 |

Questions? Please call tech support at (800) 822-7933.

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