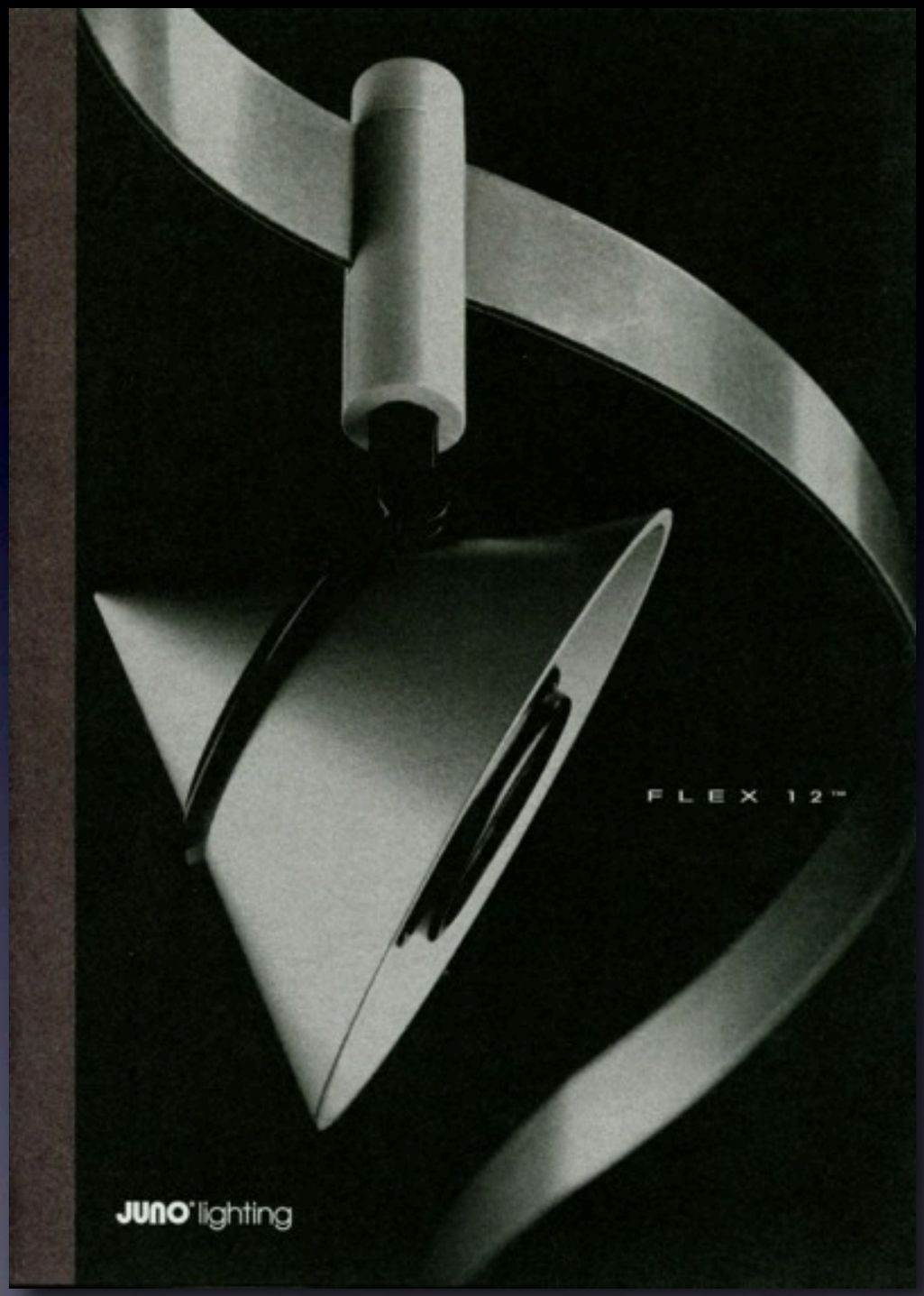
Flex12



Field-Bendable Low-Voltage Track Lighting System

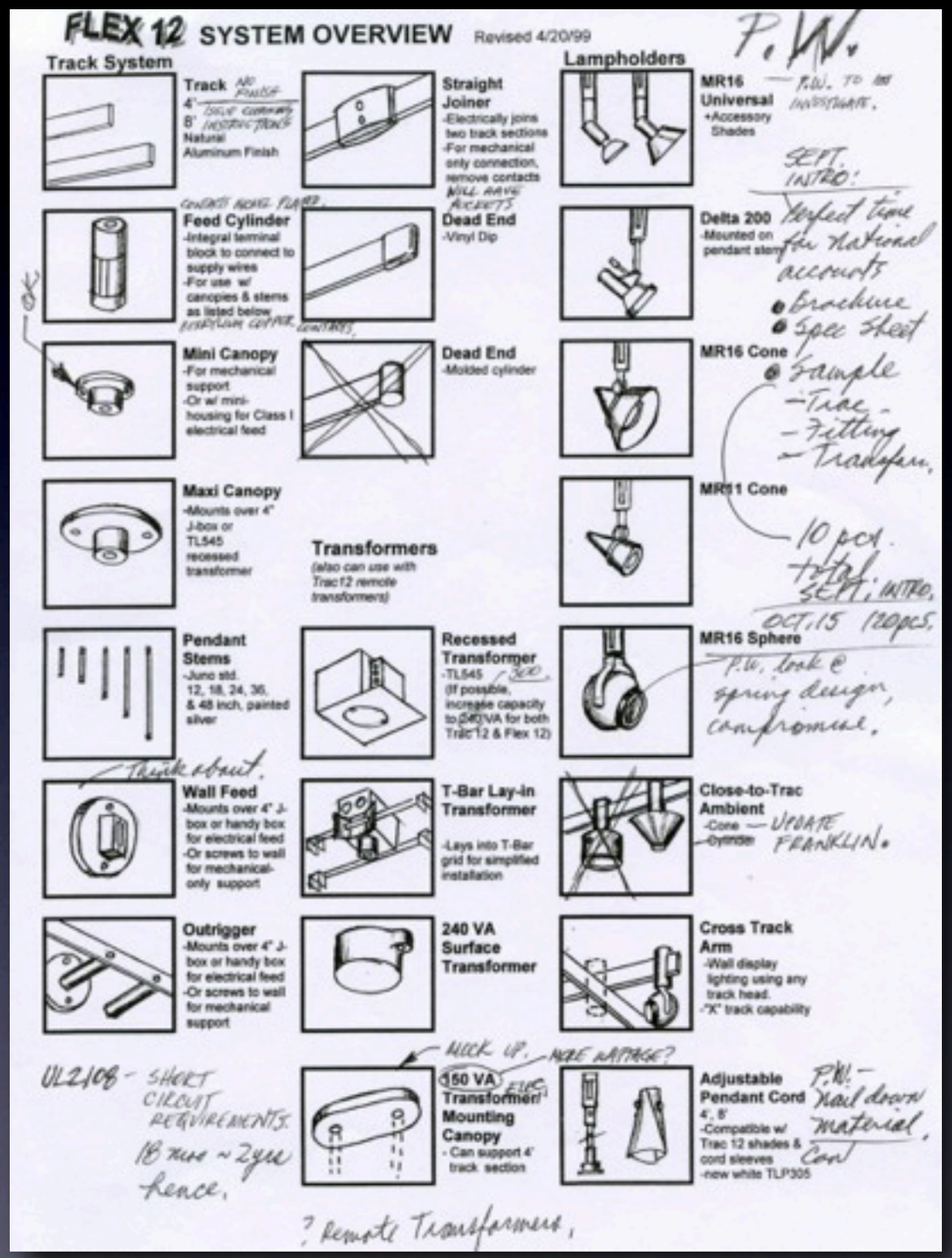
Peter Wachter Key Player in Many Aspects of Flex12 Project

Juno Lighting becomes aware of Alucobond ACM, Aluminum Composite Material, then made by Alusuisse. Marketed primarily as an architectural cladding material, with secondary applications in displays. Juno considers ACM for a low-voltage track lighting system. ACM's twin skins of 0.020" aluminum, bonded by a flexible core of non-conducting polyethylene make it a candidate for a low-voltage track system.

Peter Wachter as Director of Product Design is assigned lead designer and project manager responsibilities.

In the early stages, engineering resources could not be allocated to the project so Peter assumes role as conceptual electrical and mechanical design engineer on the project. In the following story, all the drawings and the concepts they represent were created by Peter.

Road Map - Fewest SKU's is Objective

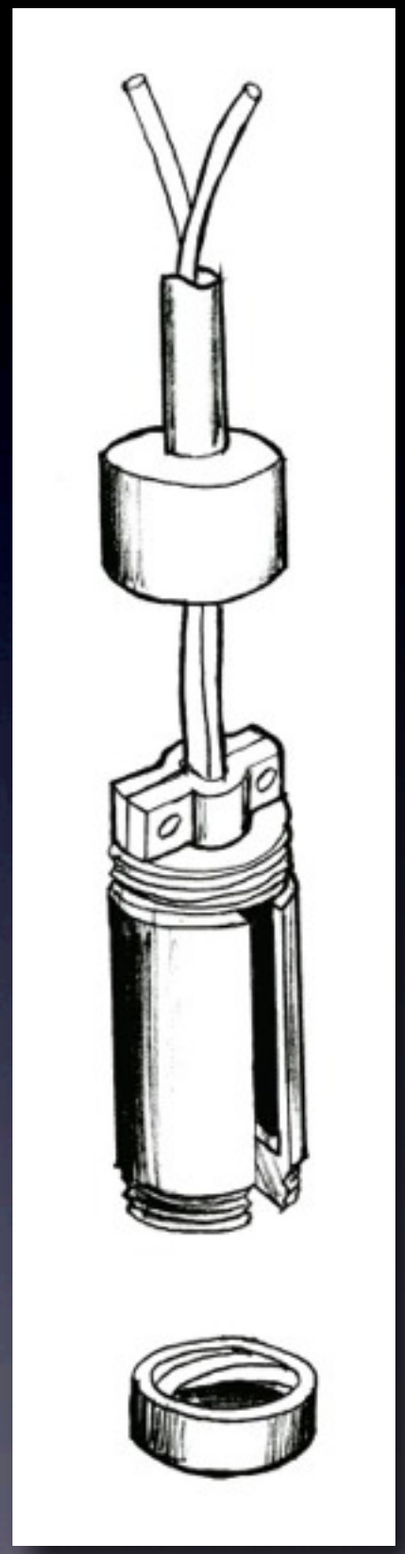


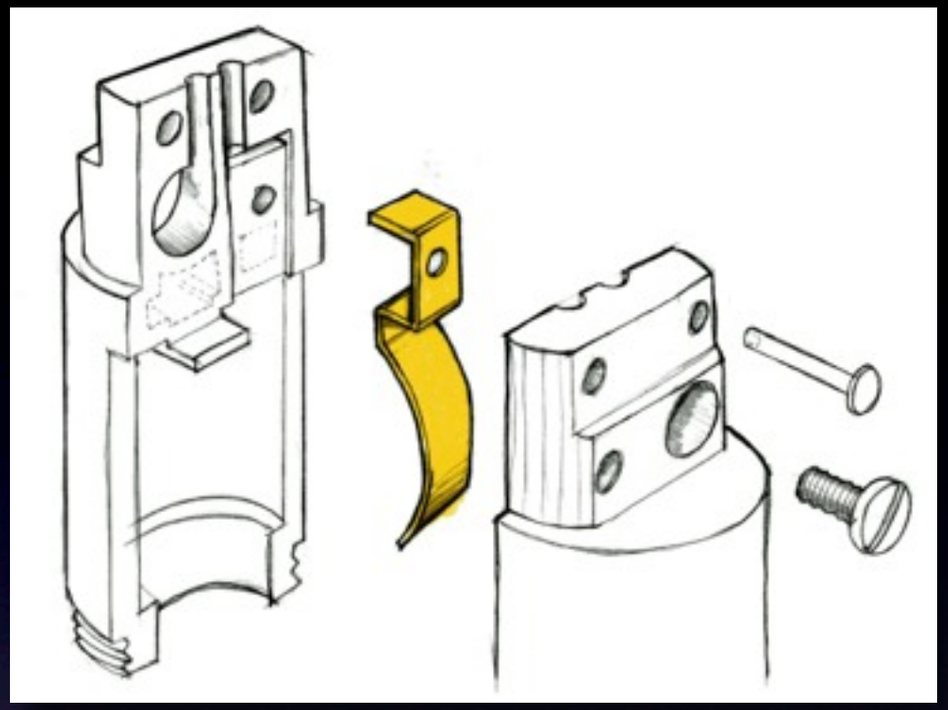
Frequently modified road map helped keep the sku's to a very manageable level. Low sku count was a goal from the outset to make the system as easy as possible to understand, specify, order and install.

Few sku's was to be the key differentiator from many of the competitors.

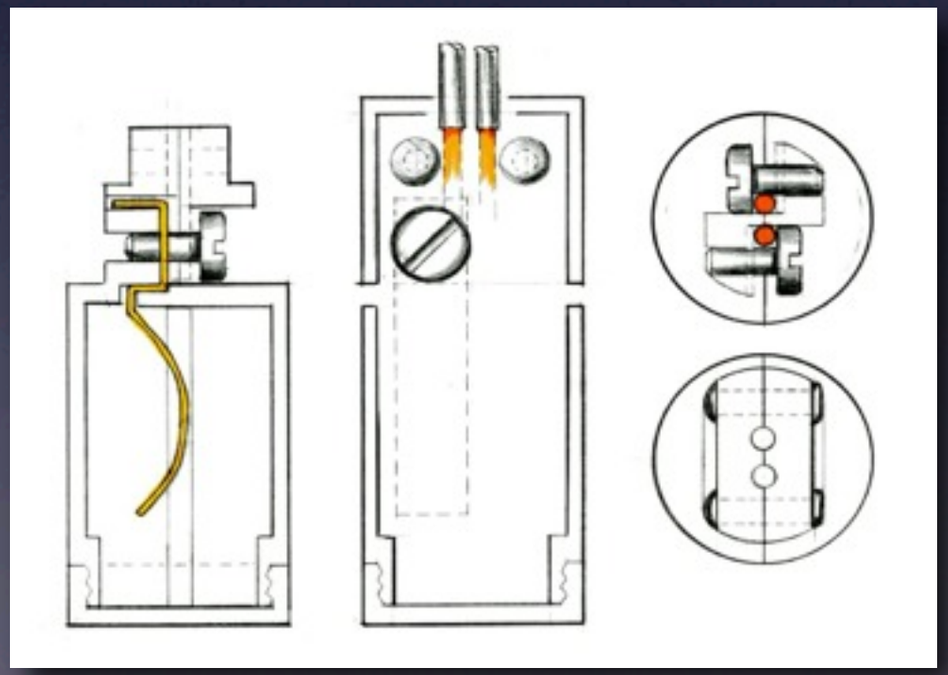
At roll-out there were 28 sku's. As new fixtures were created for the company's other low-voltage system,Trac12, some were added to the Flex12 system by simple addition of a Flex12 adapter cylinder. Crossover compatibility between systems was constant goal.

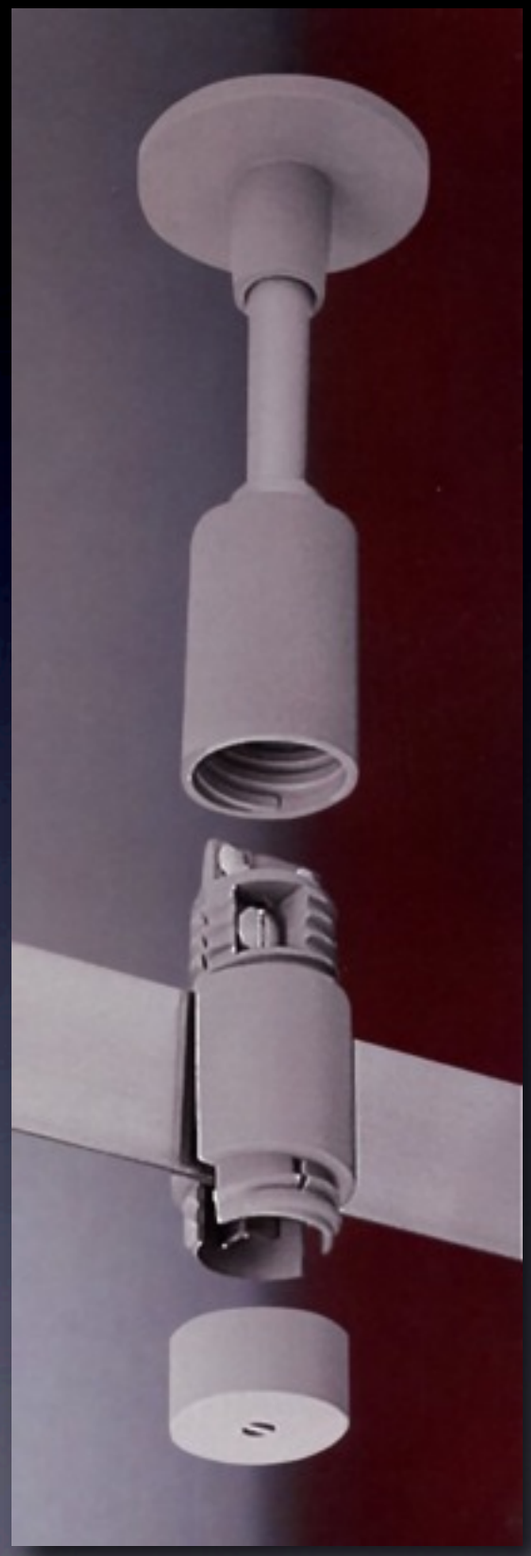
Electrical Feed Cylinder is Conceptual Heart of the System



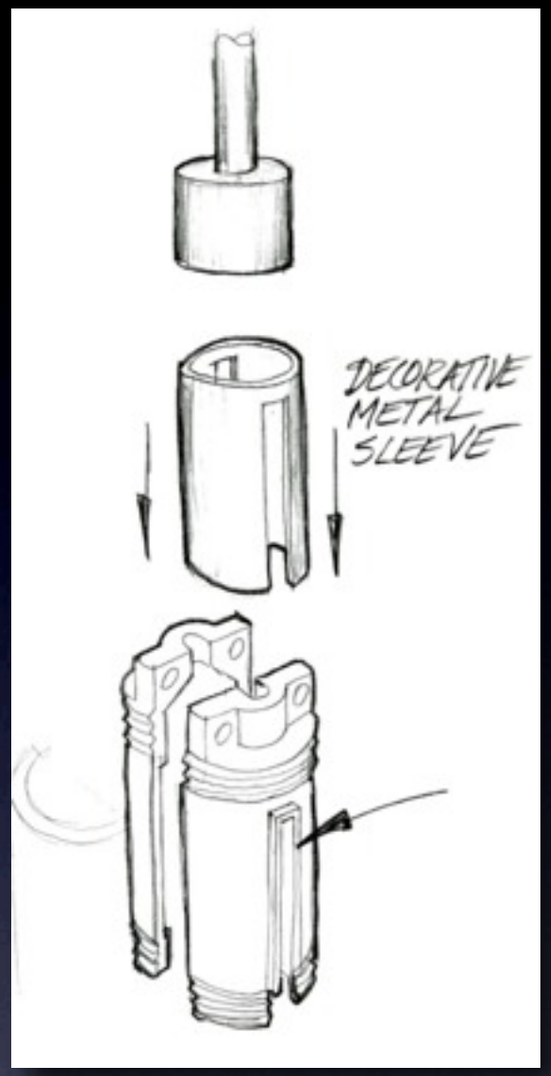


Offset contact geometry prevents a dead short. Straight wire insertion and screw clamping reduces risk of arcing and effort using 10 or 12 gauge wire.

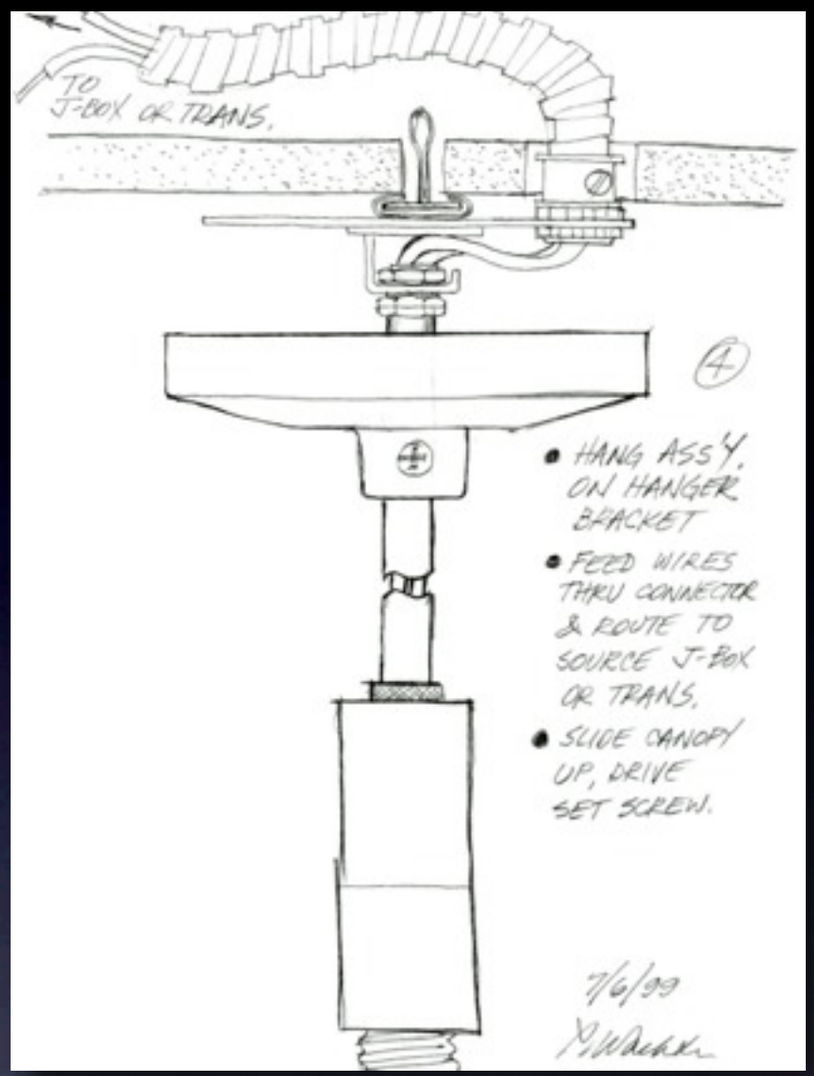




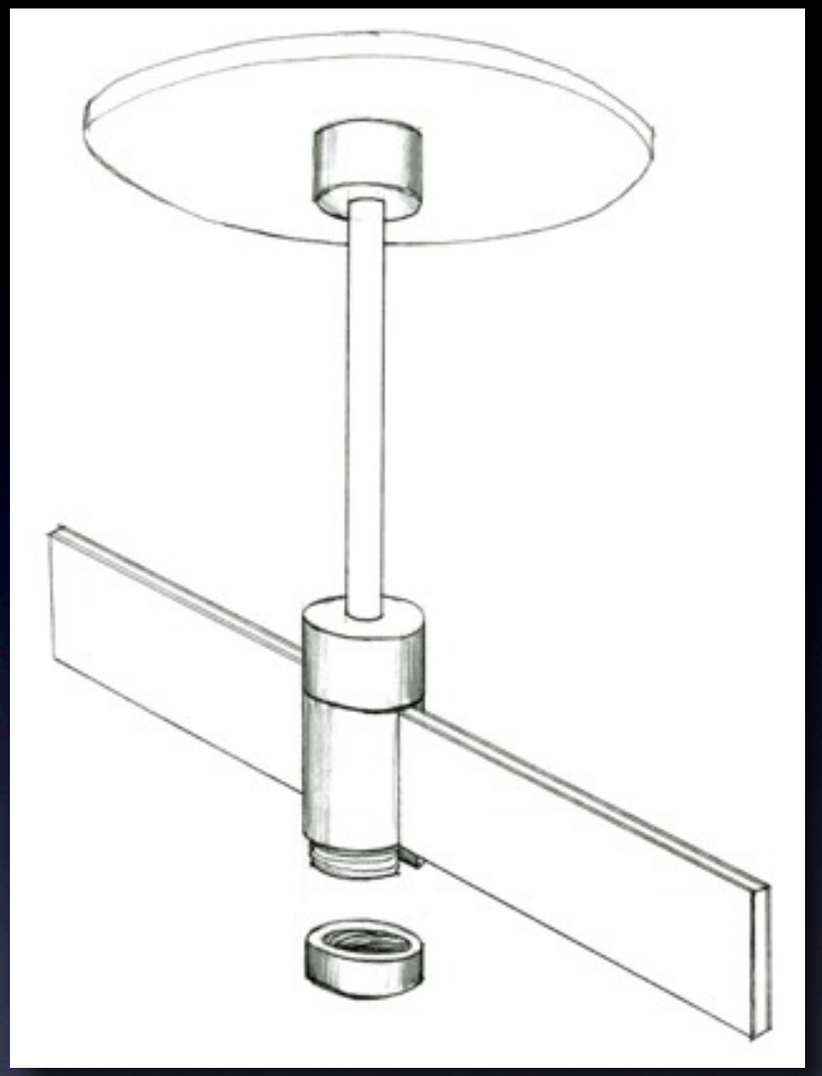
Electrical Feed Cylinder - Other Views



Decorative metal sleeve concept.

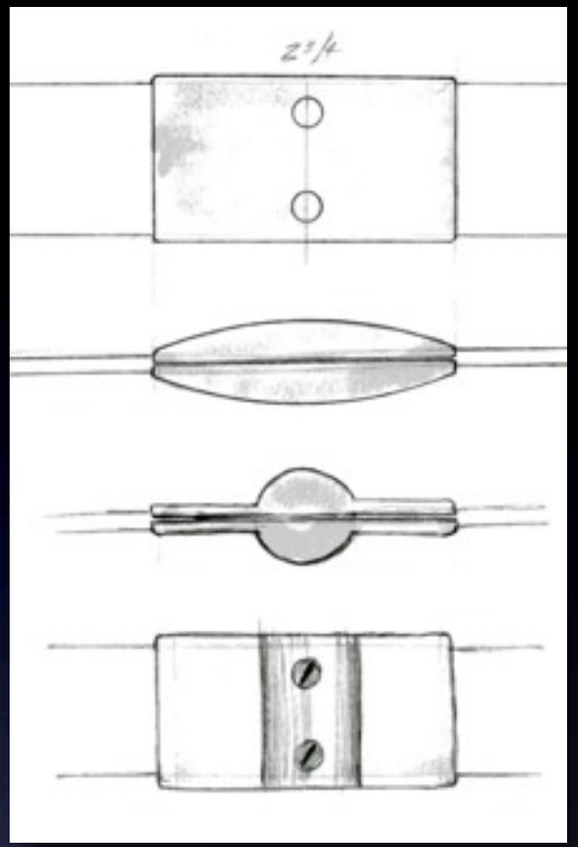


T-Bar ceiling mounting.

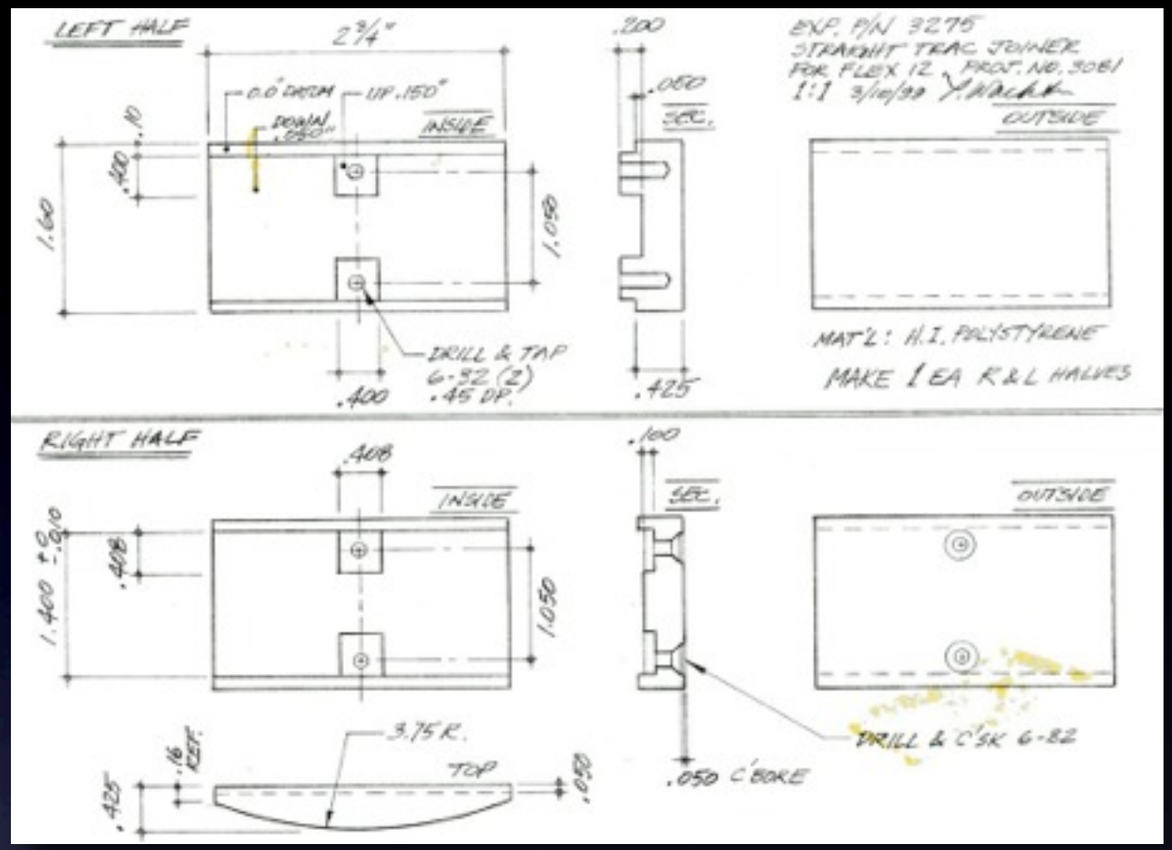


Final user experience and aesthetic design.

Straight Joiner



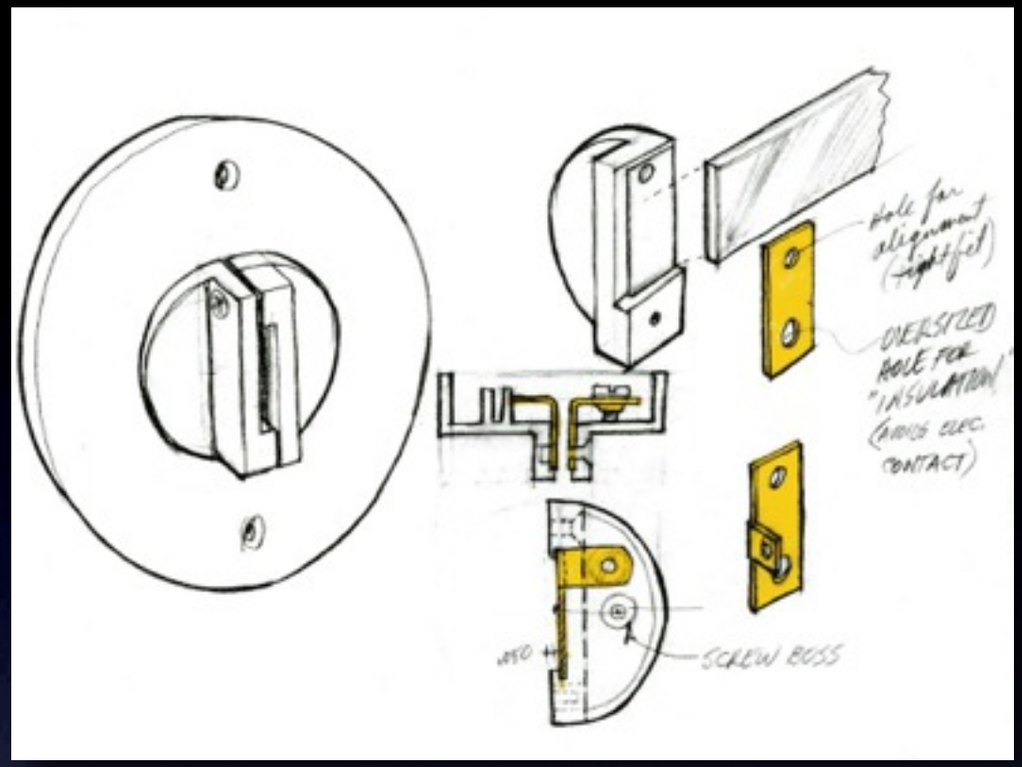
Concepts

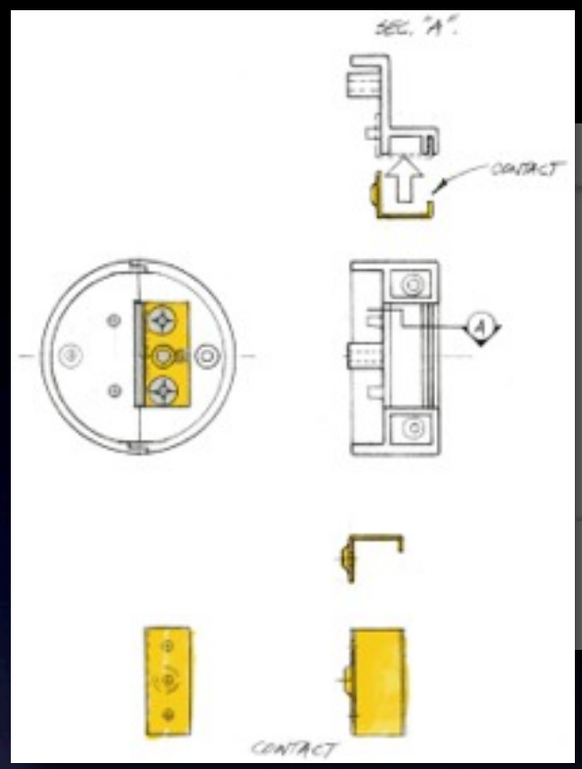


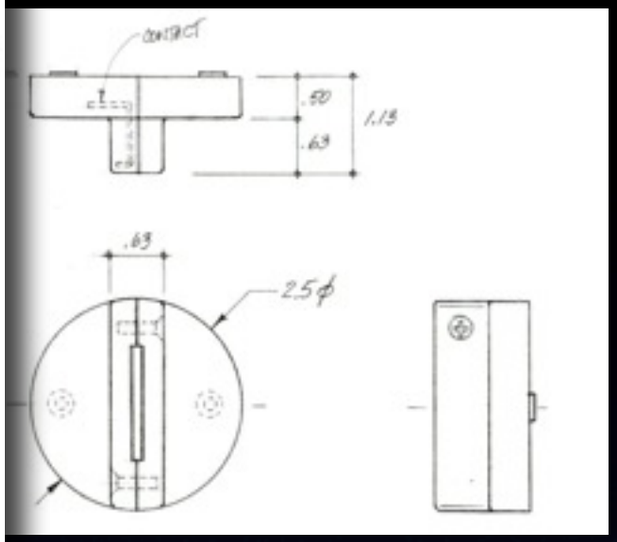
Shop drawing

Model + Final

Wall Feed

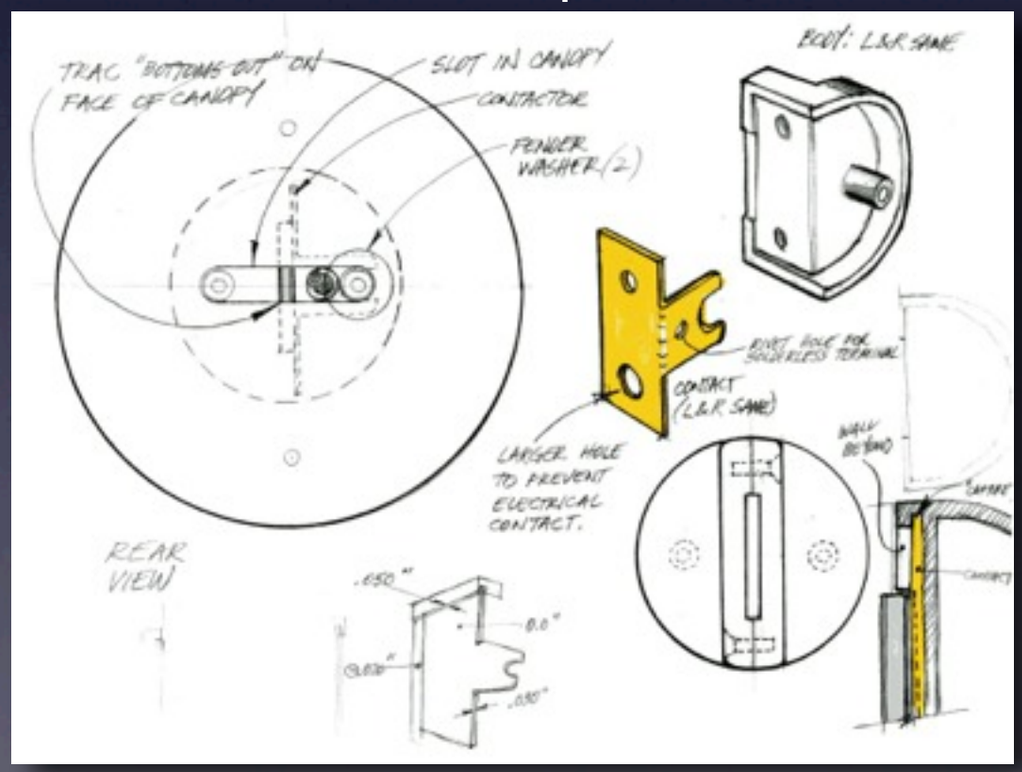






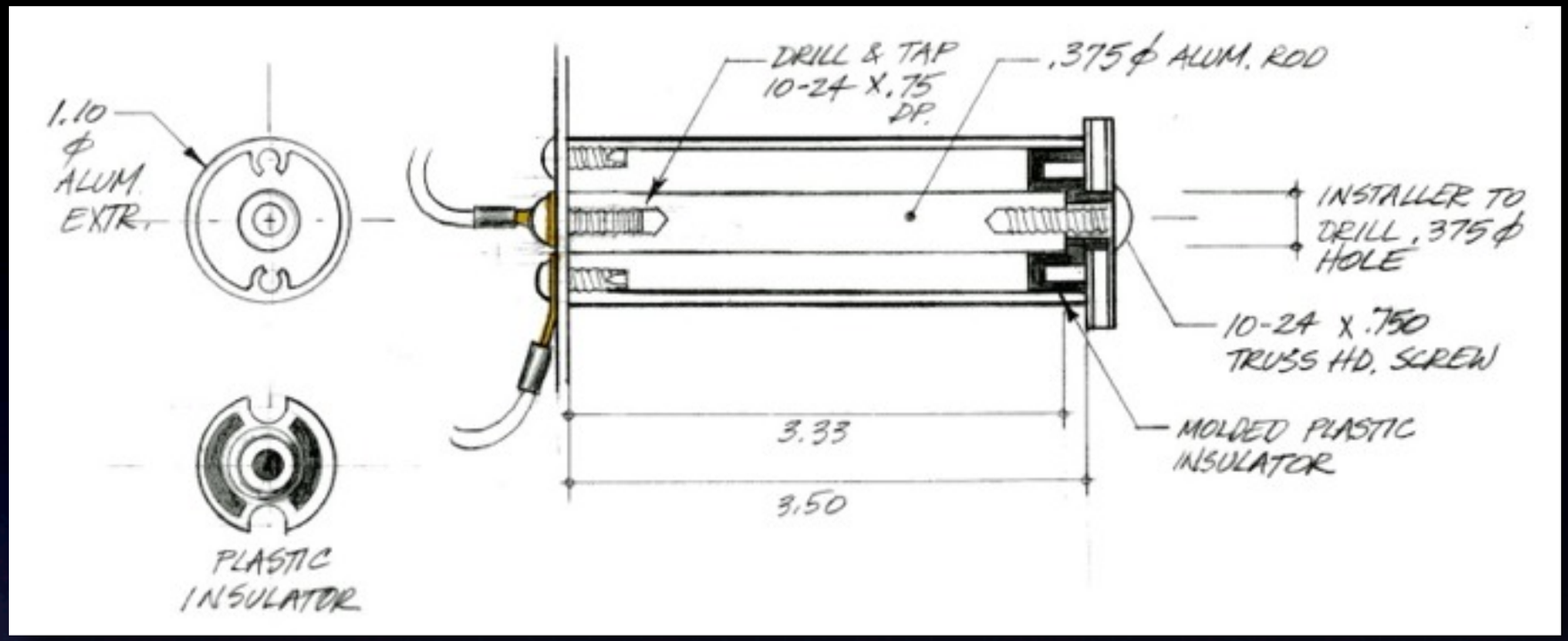
Shop drawings

Concepts

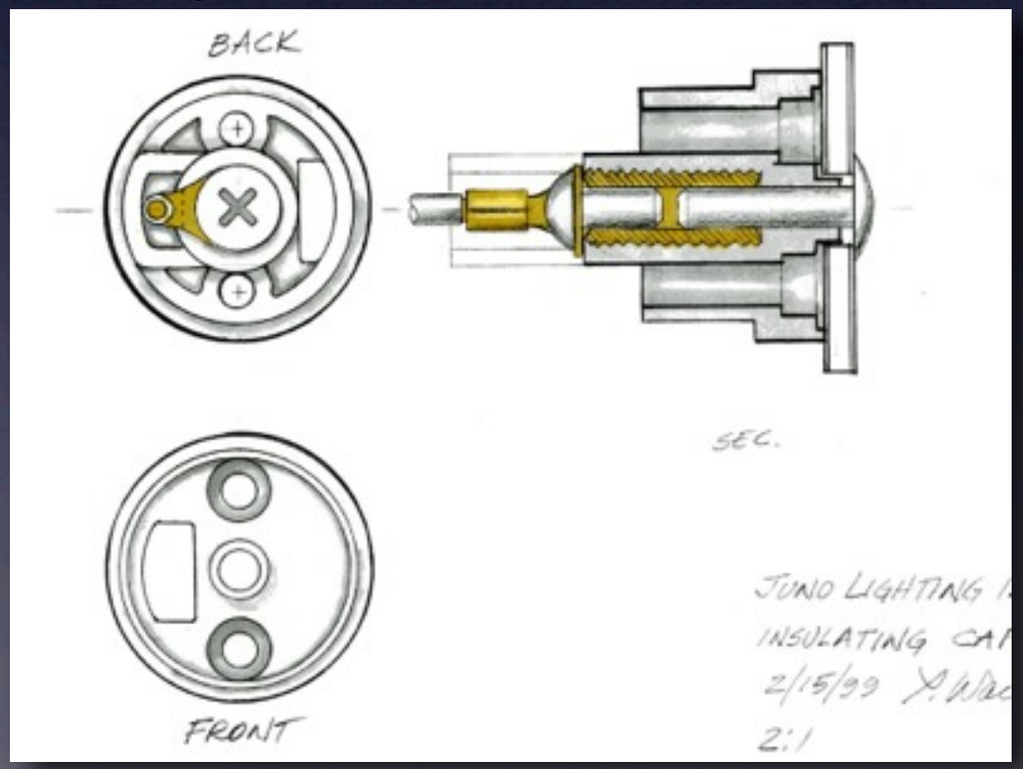


Final

Outrigger Feed

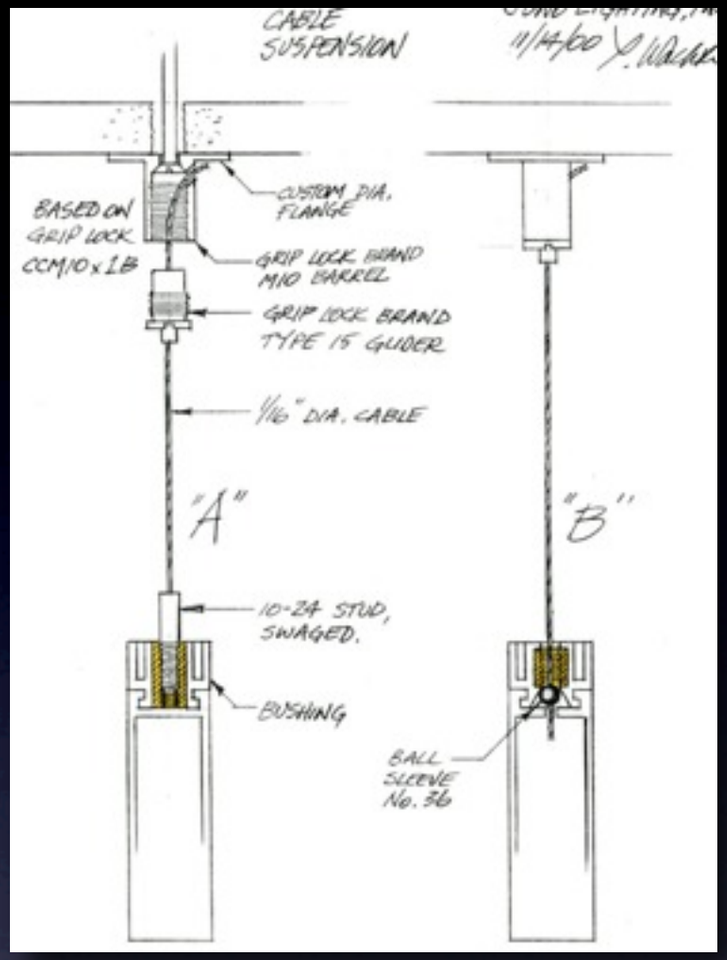


Concept

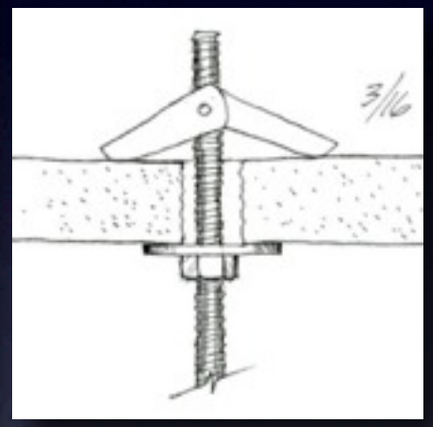


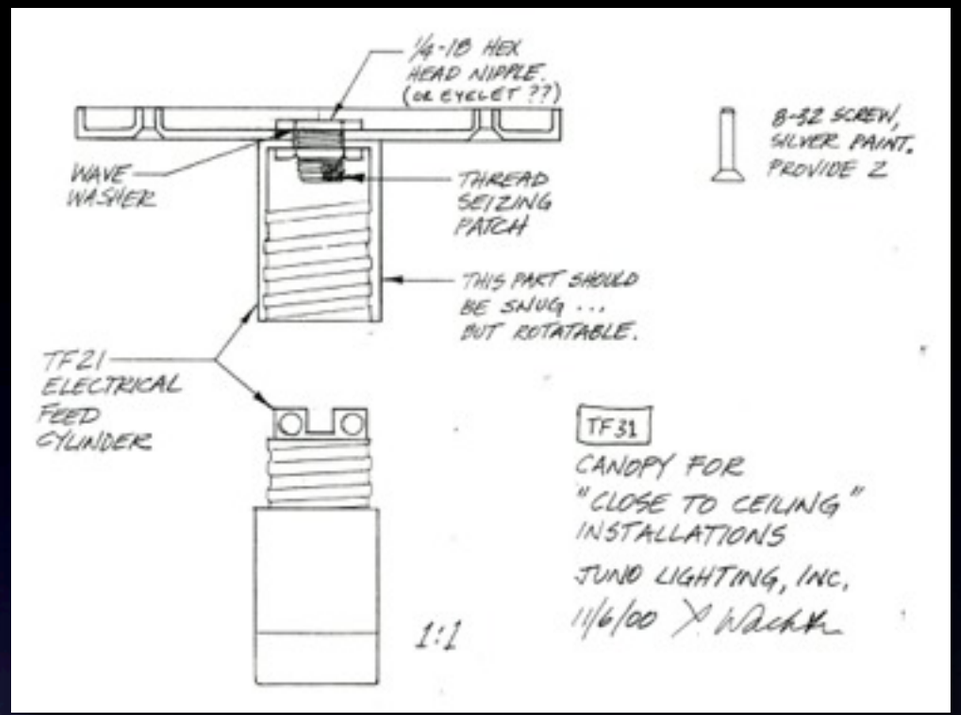
Shop drawing

Other System Components Designs

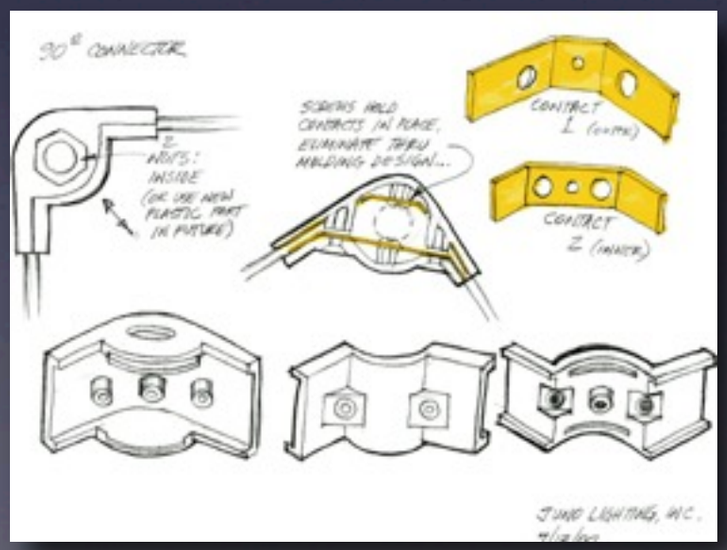


Aircraft Cable and Threaded Rod Suspension

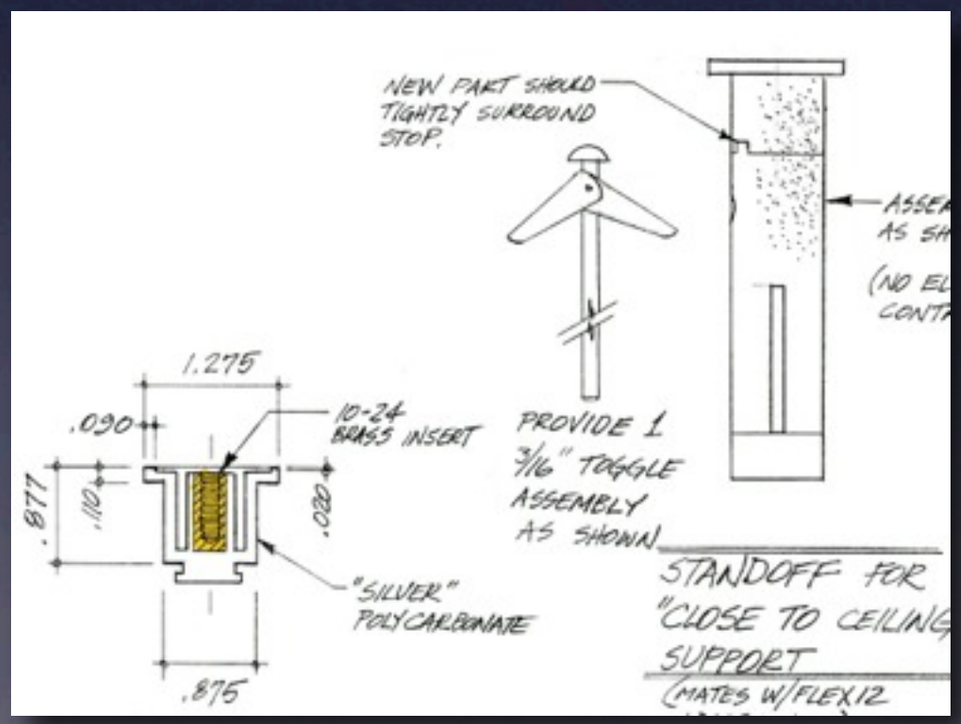




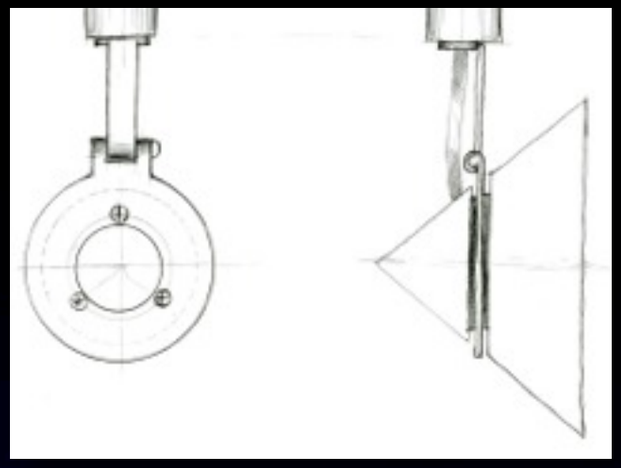
Close-To-Ceiling “Adders”

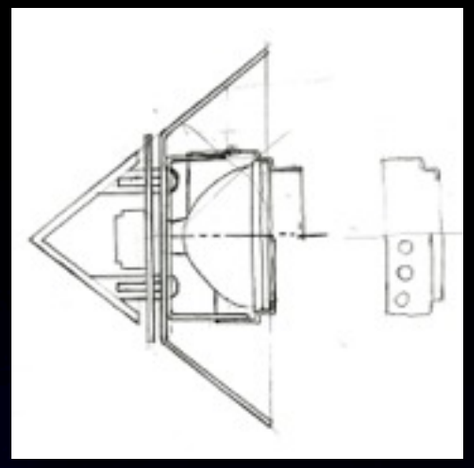


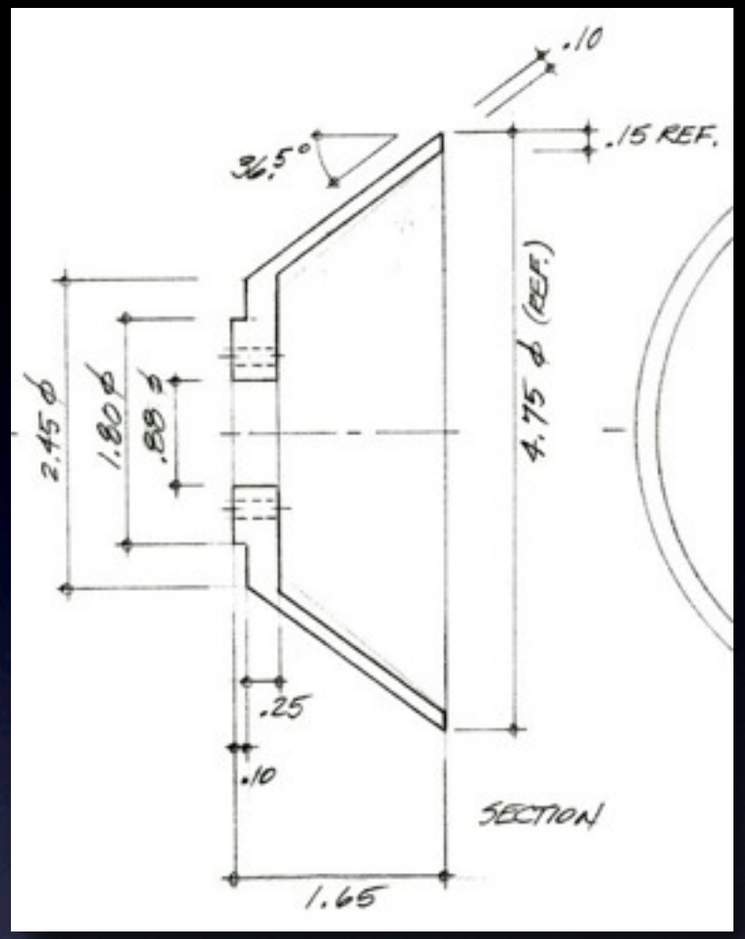
90° Connector + Corner Hanger (not done)

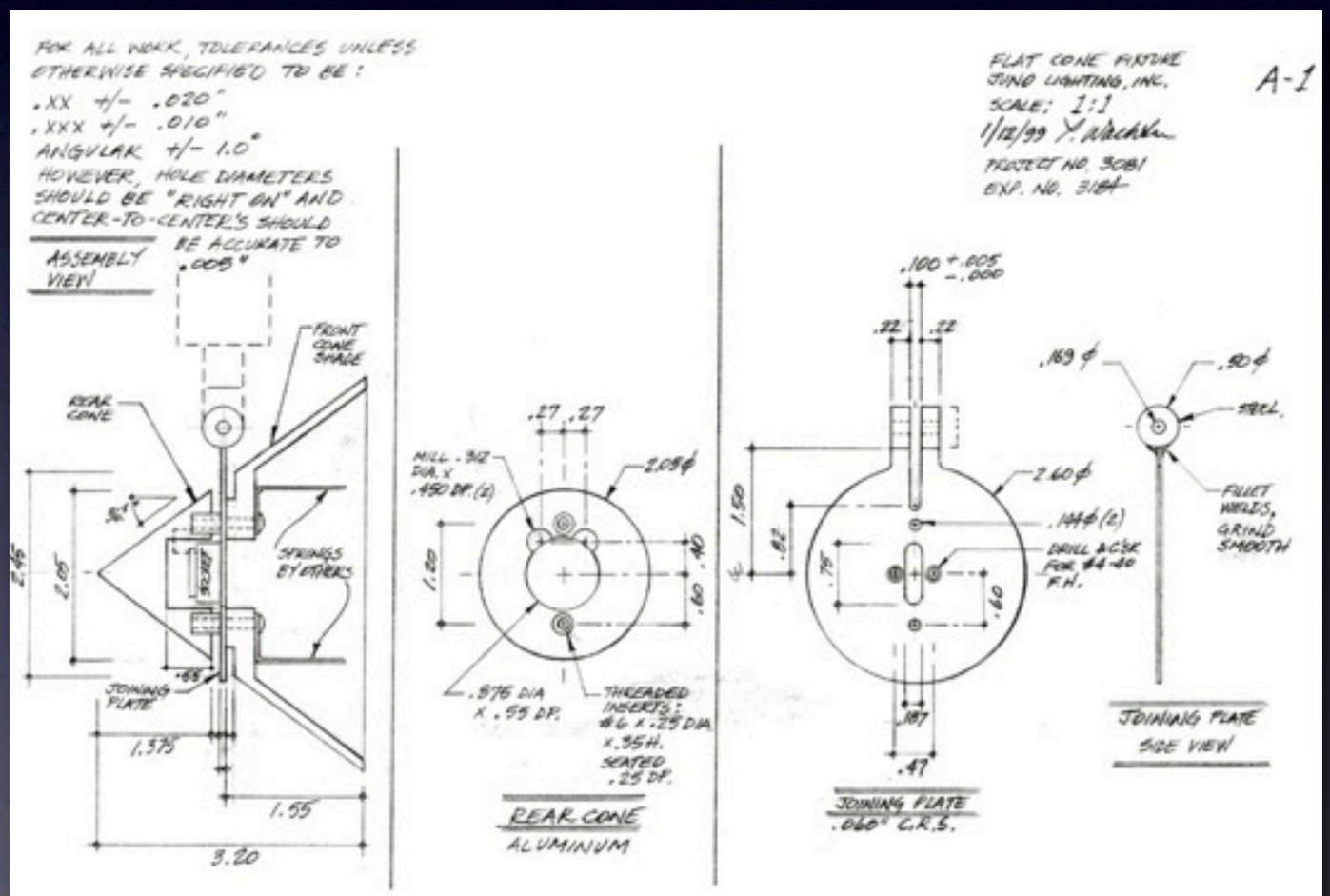


CONE MR16 Fixture



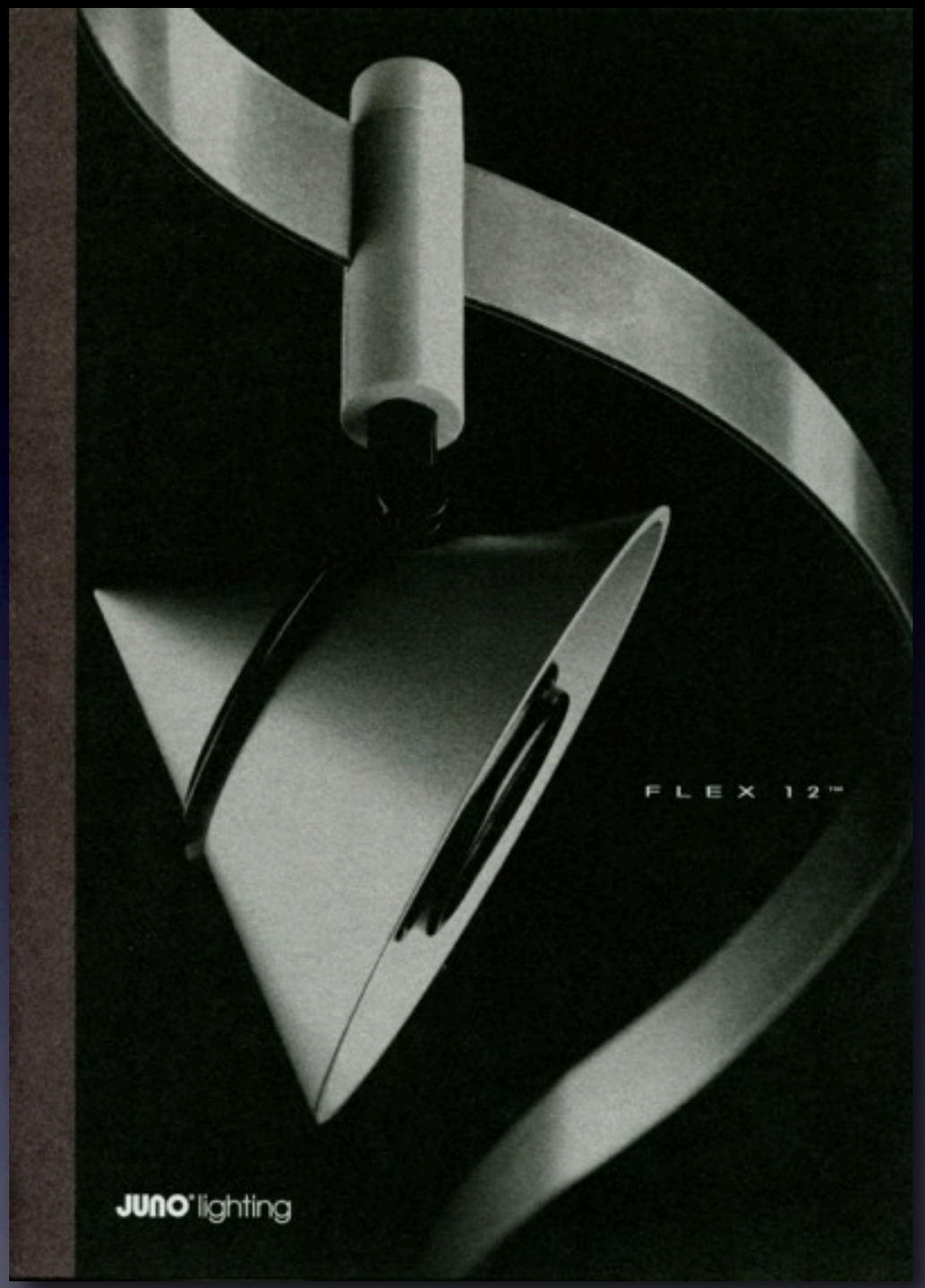






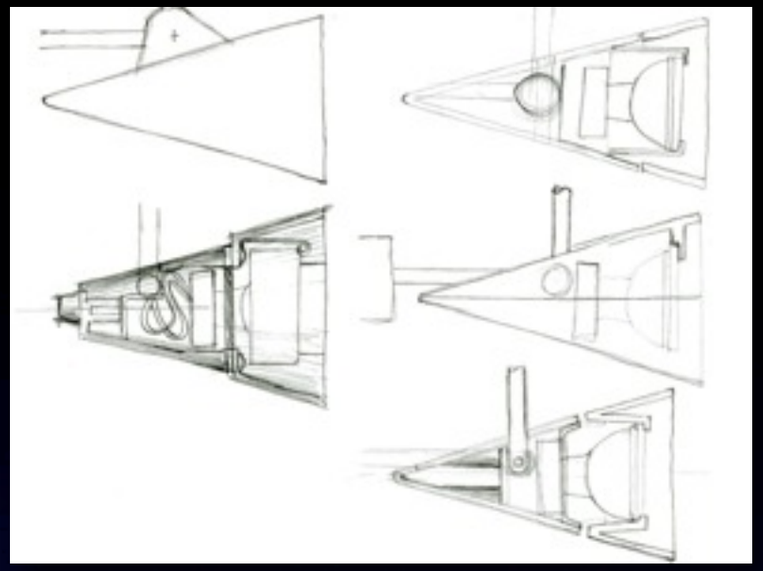
CONE MR16 Fixture

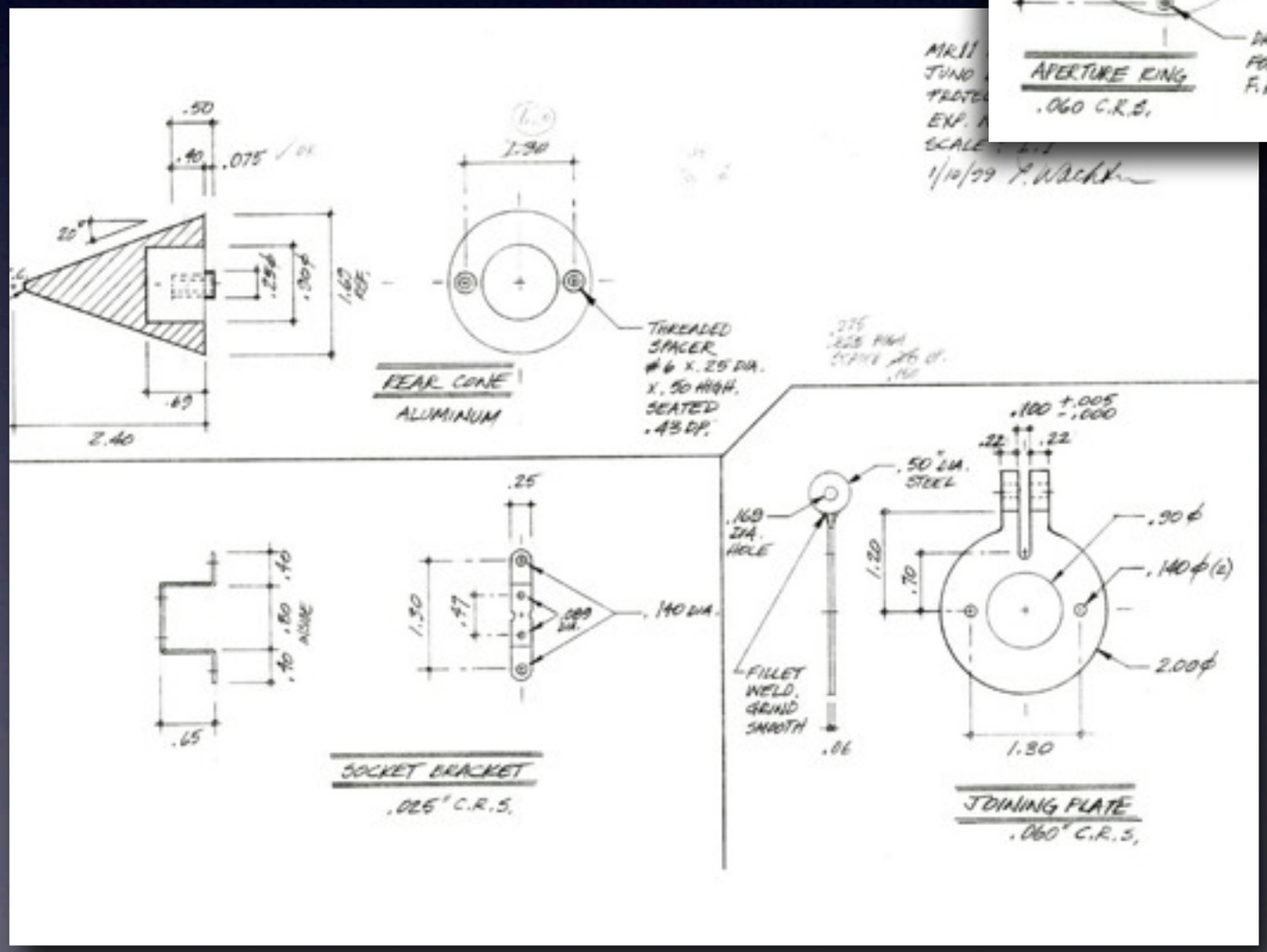
Created “glamour shot” for catalog

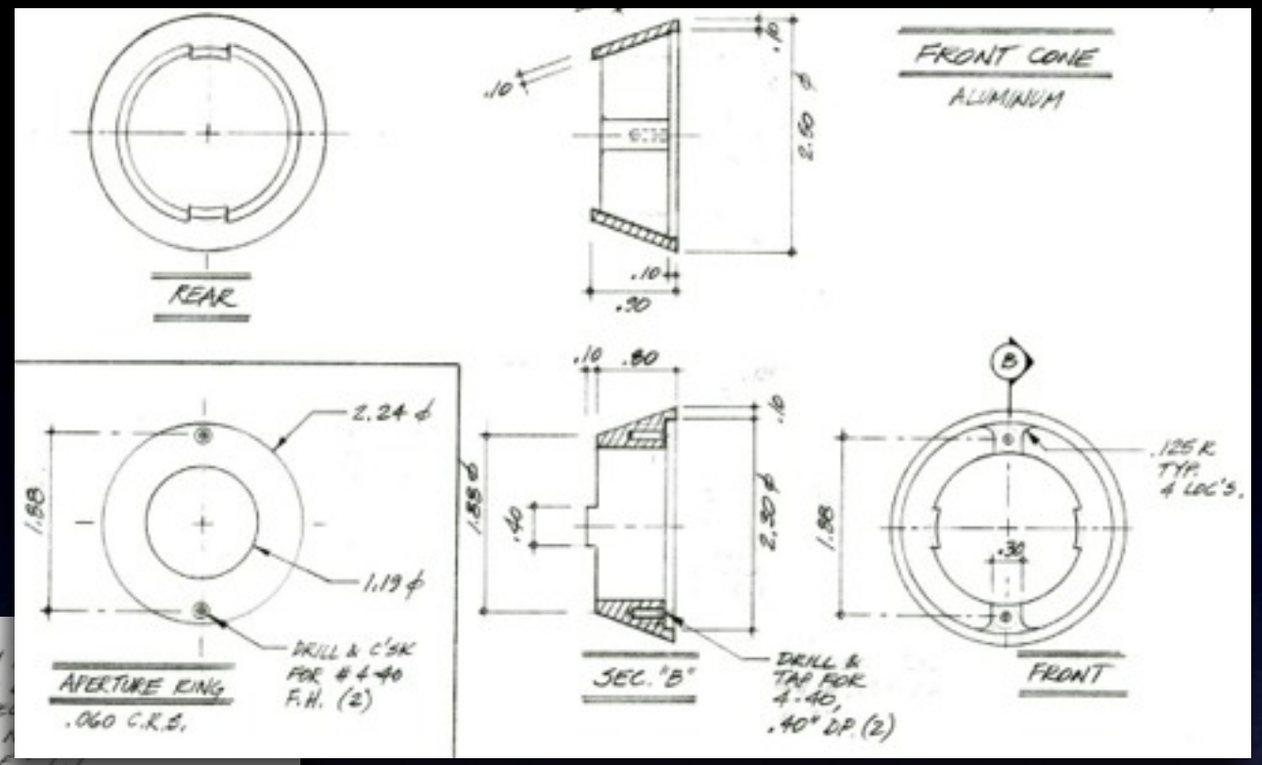


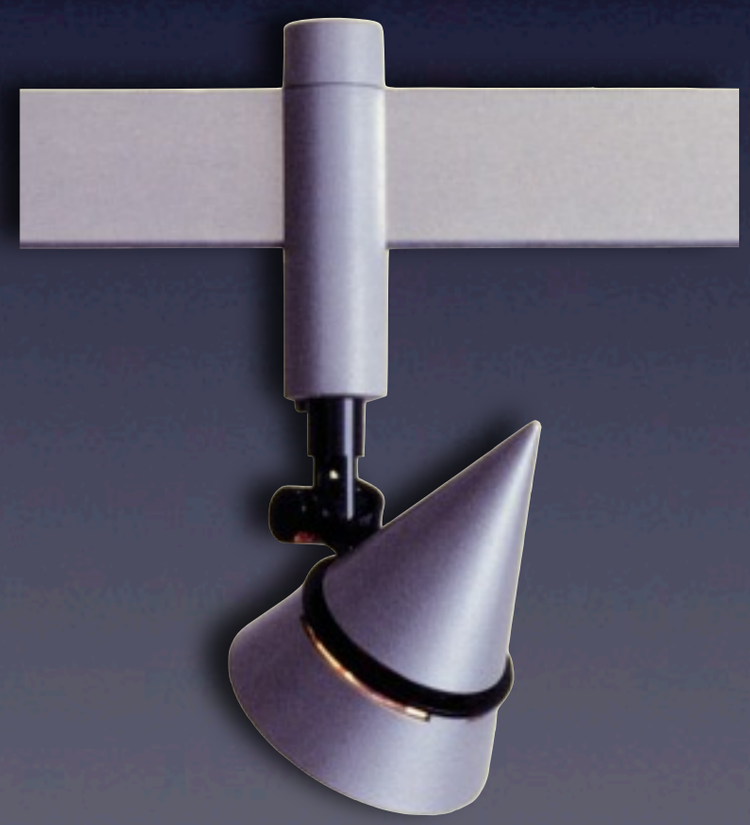
Roll Out Catalog

DART MR11 Fixture

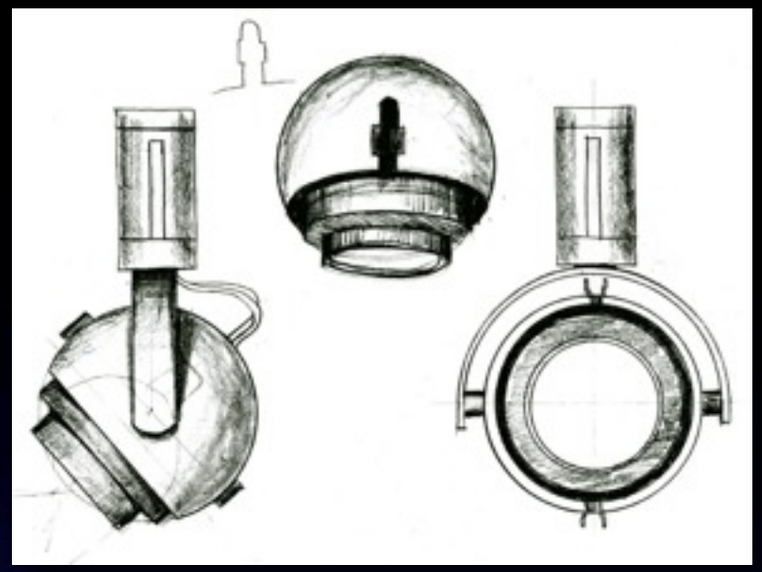


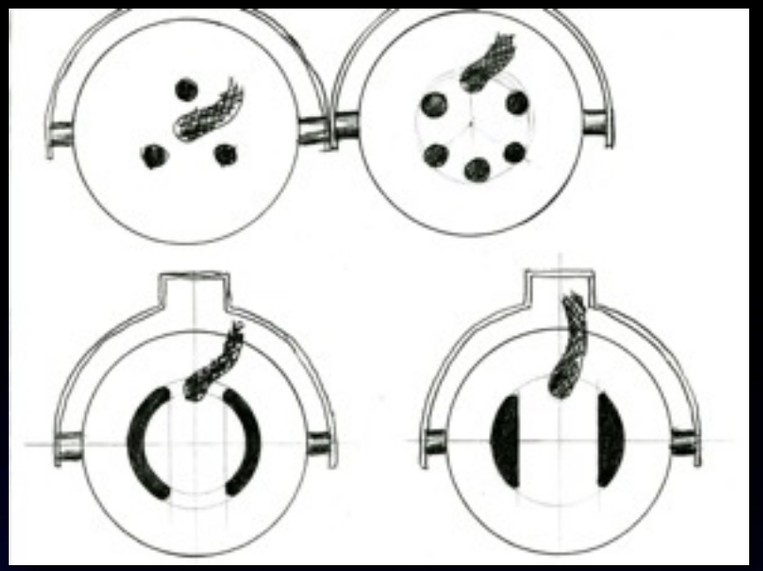


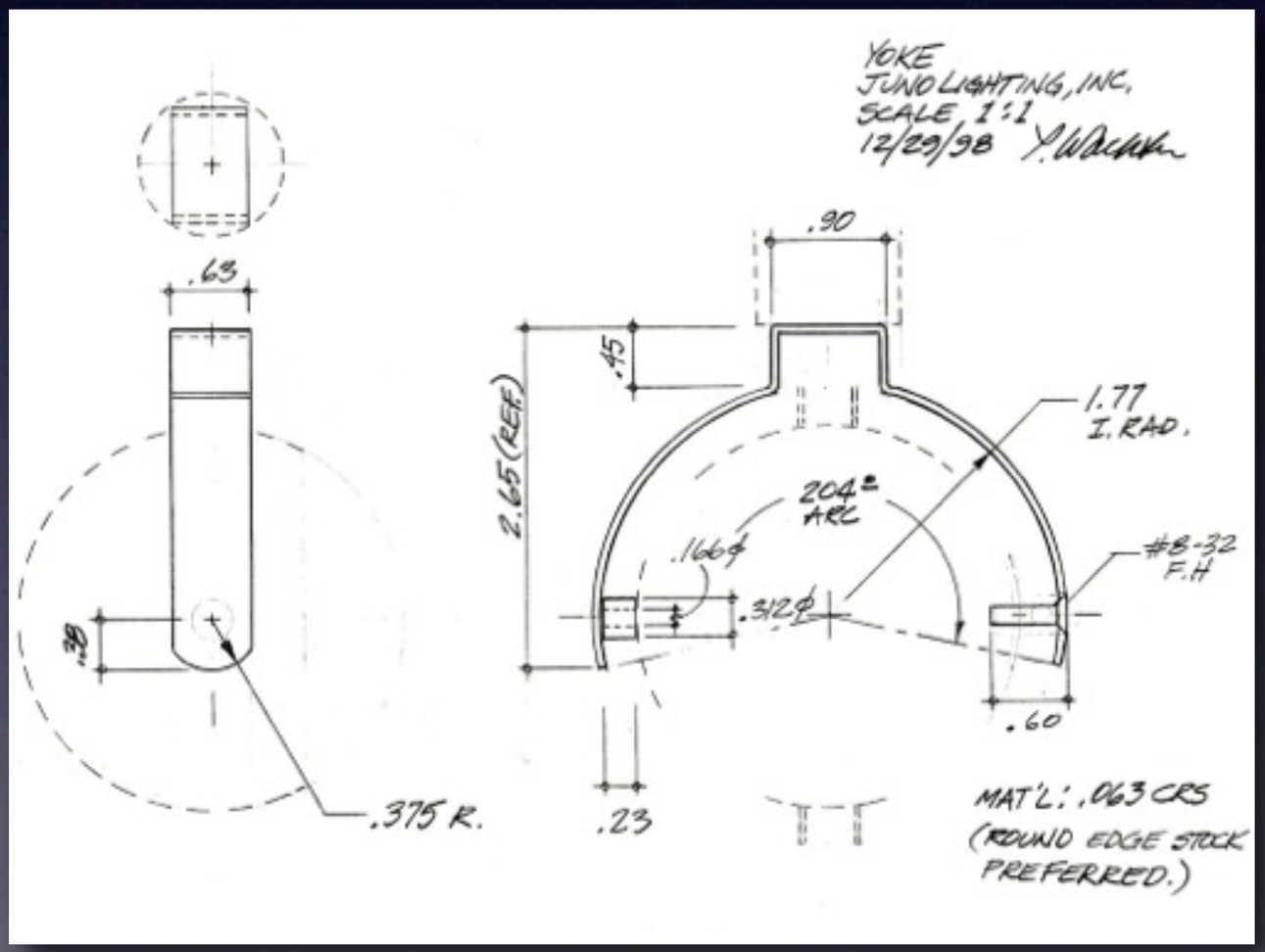


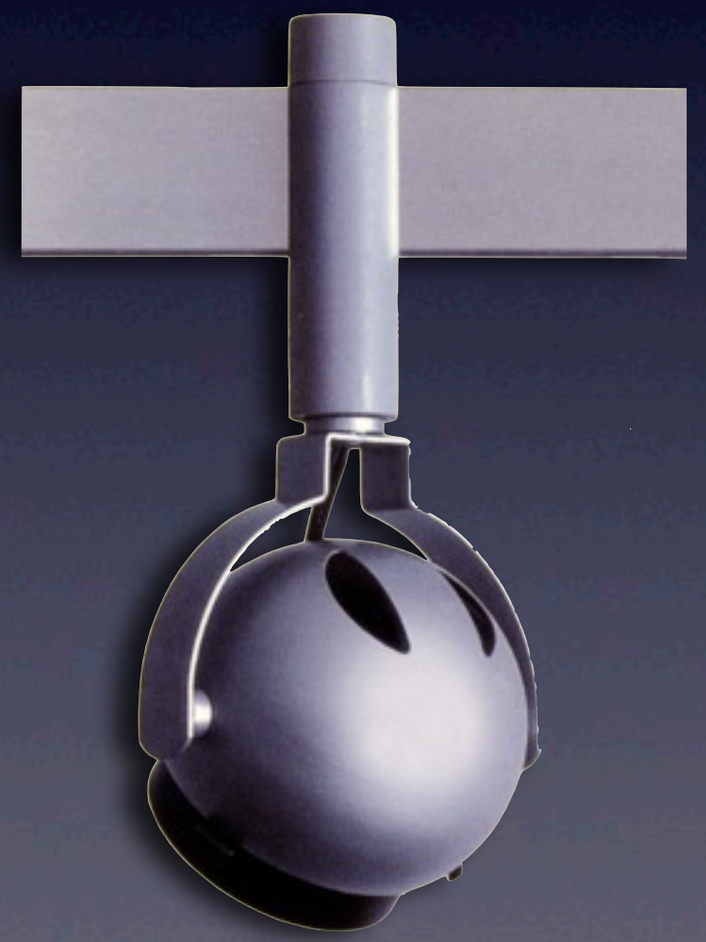


ORB MR16 Fixture

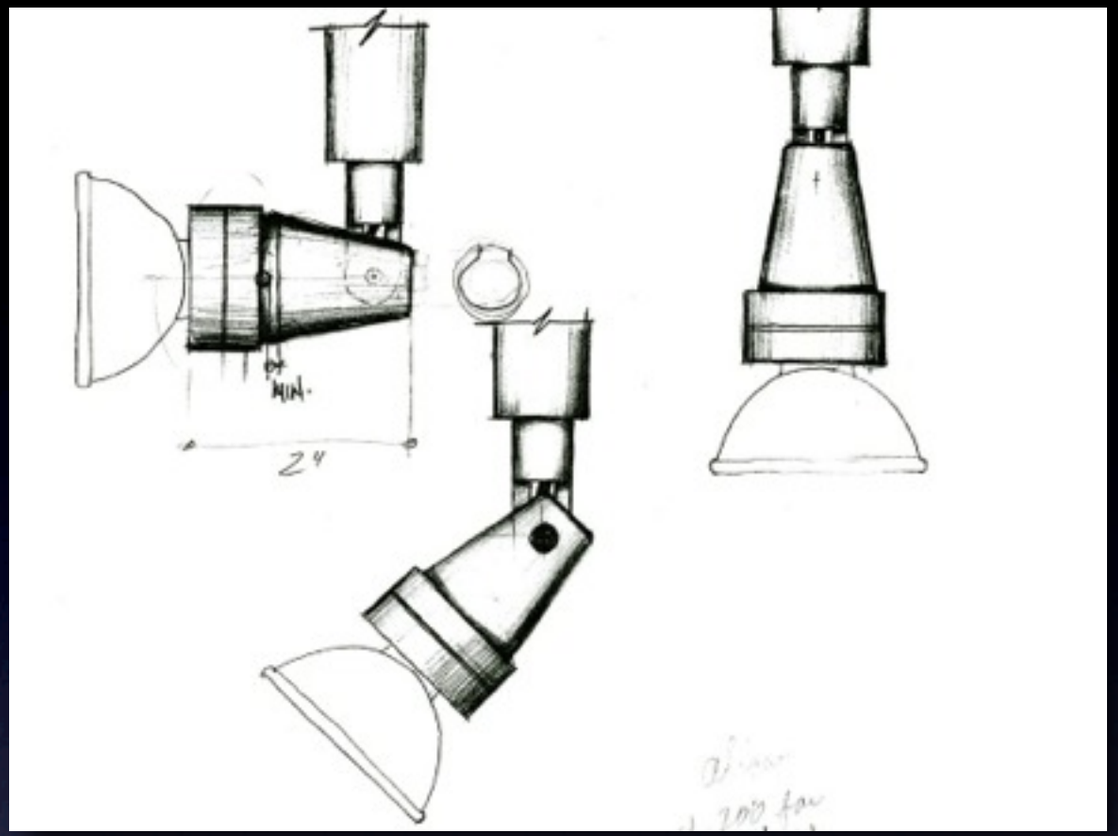


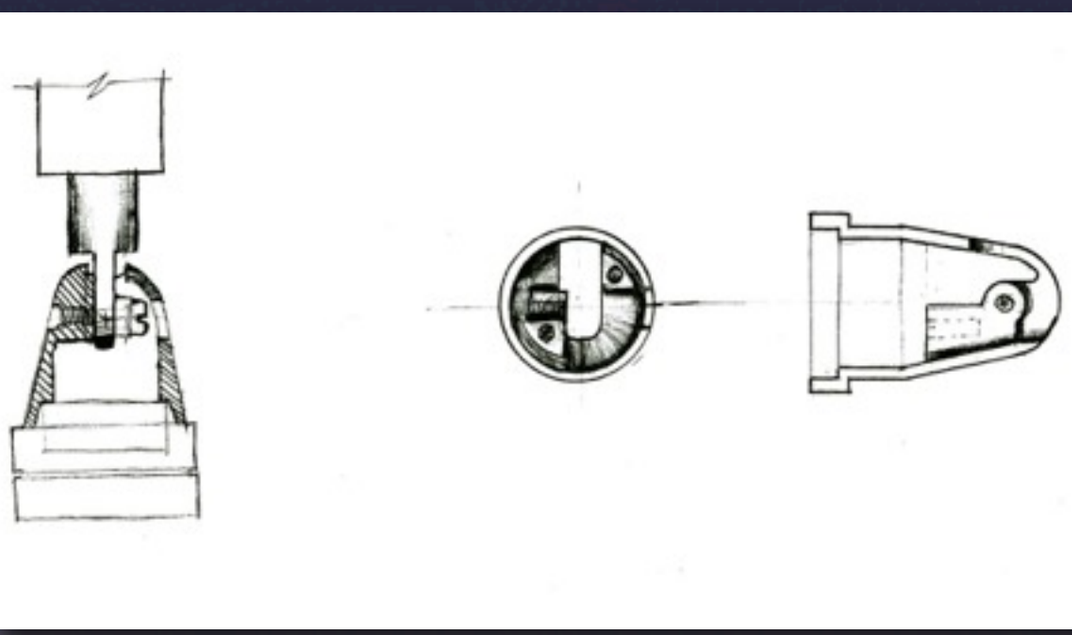


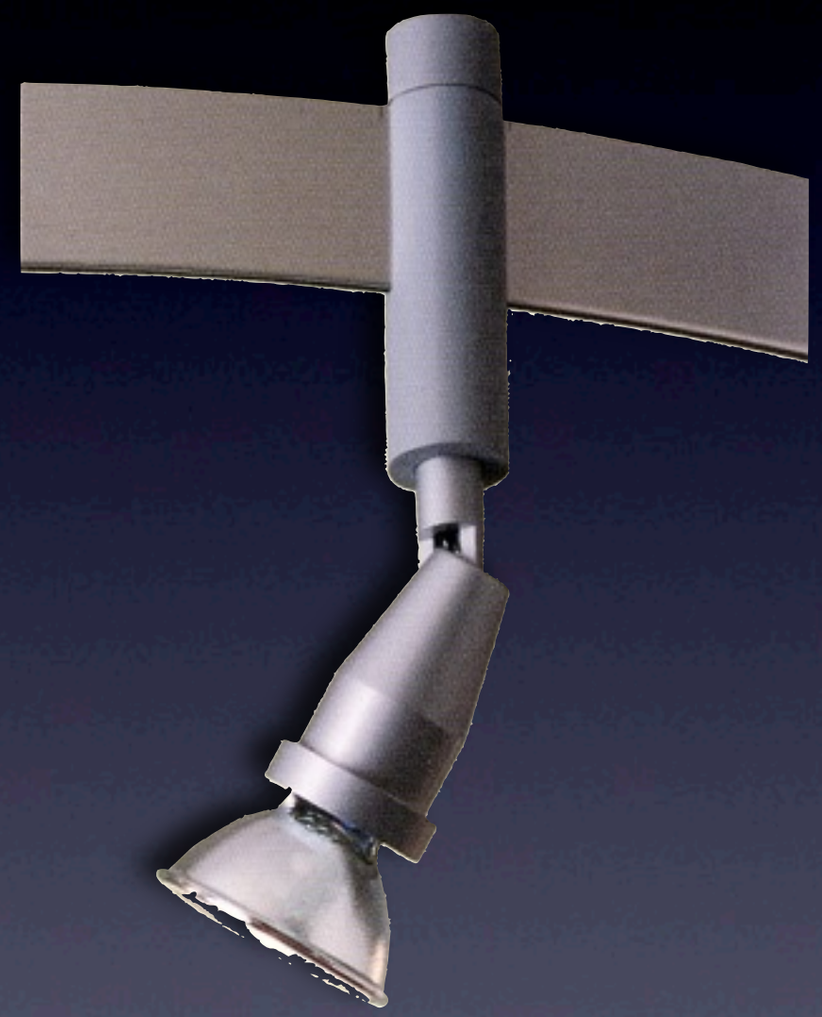




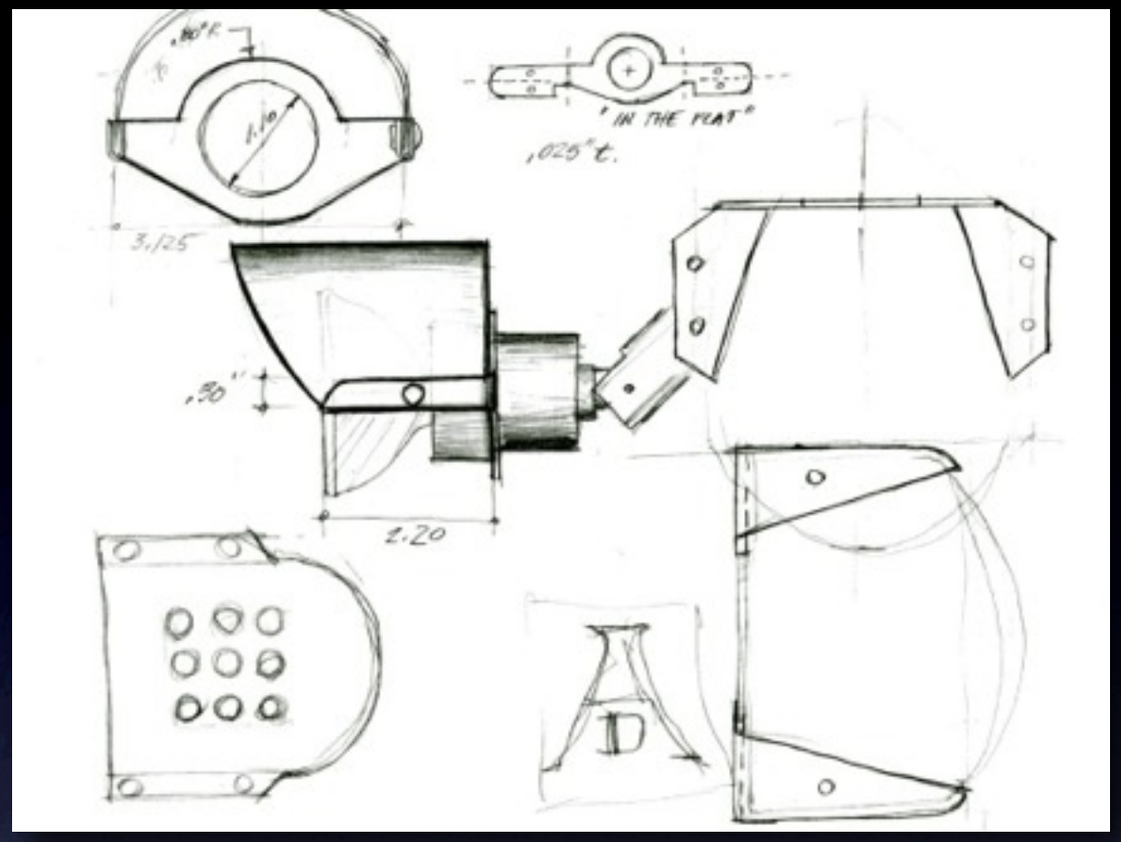
UNIVERSAL MR16 Fixture

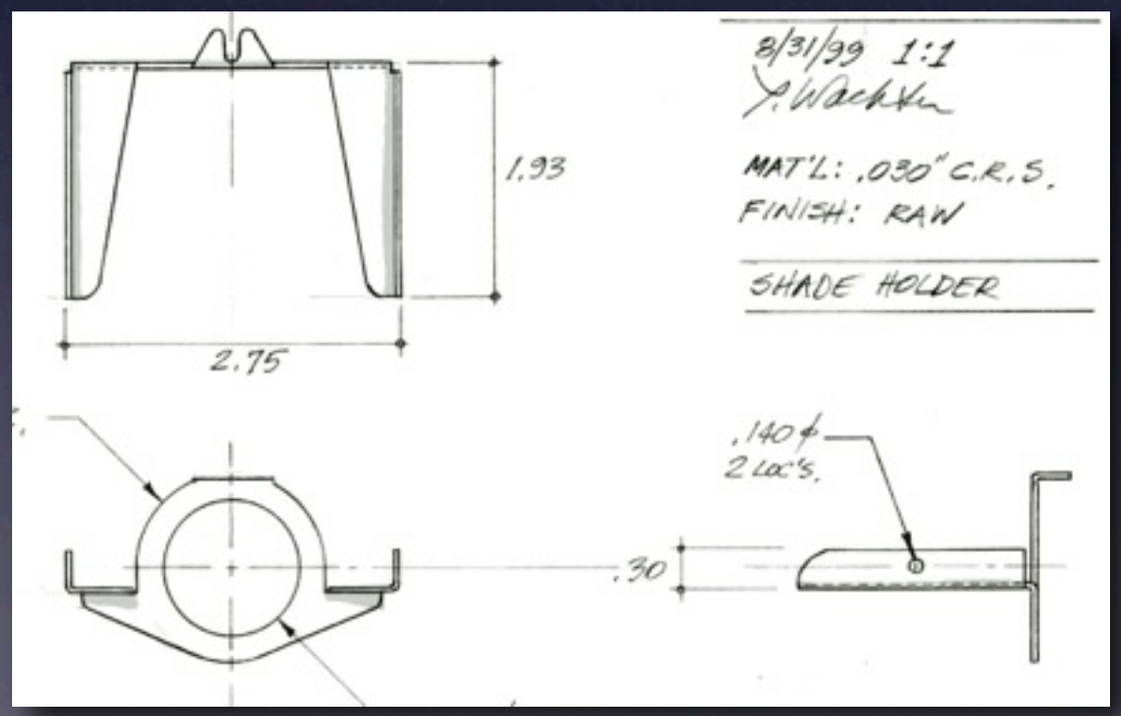




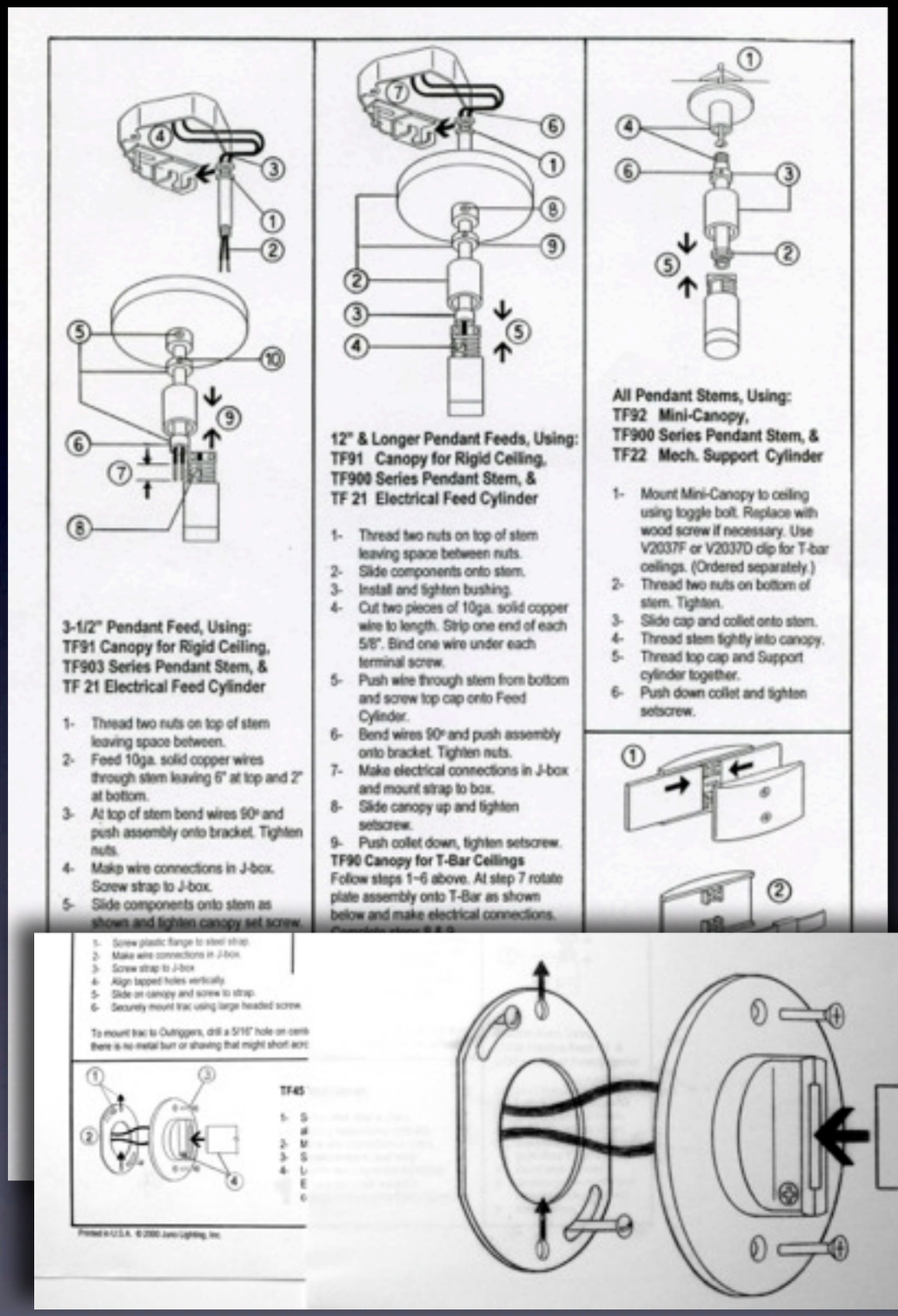


UNIVERSAL MR16 Fixture - Accessory Shade





Instructions and Layout Guides for Catalog



3-1/2" Pendant Feed, Using:
TF91 Canopy for Rigid Ceiling,
TF903 Series Pendant Stem, &
TF 21 Electrical Feed Cylinder

1- Thread two nuts on top of stem leaving space between.
2- Feed 10ga. solid copper wires through stem leaving 6" at top and 2" at bottom.
3- At top of stem bend wires 90° and push assembly onto bracket. Tighten nuts.
4- Make wire connections in J-box. Screw strap to J-box.
5- Slide components onto stem as shown and tighten canopy set screw.

12" & Longer Pendant Feeds, Using:
TF91 Canopy for Rigid Ceiling,
TF900 Series Pendant Stem, &
TF 21 Electrical Feed Cylinder

1- Thread two nuts on top of stem leaving space between nuts.
2- Slide components onto stem.
3- Install and tighten bushing.
4- Cut two pieces of 10ga. solid copper wire to length. Strip one end of each 5/8". Bind one wire under each terminal screw.
5- Push wire through stem from bottom and screw top cap onto Feed Cylinder.
6- Bend wires 90° and push assembly onto bracket. Tighten nuts.
7- Make electrical connections in J-box and mount strap to box.
8- Slide canopy up and tighten setscrew.
9- Push collet down, tighten setscrew.

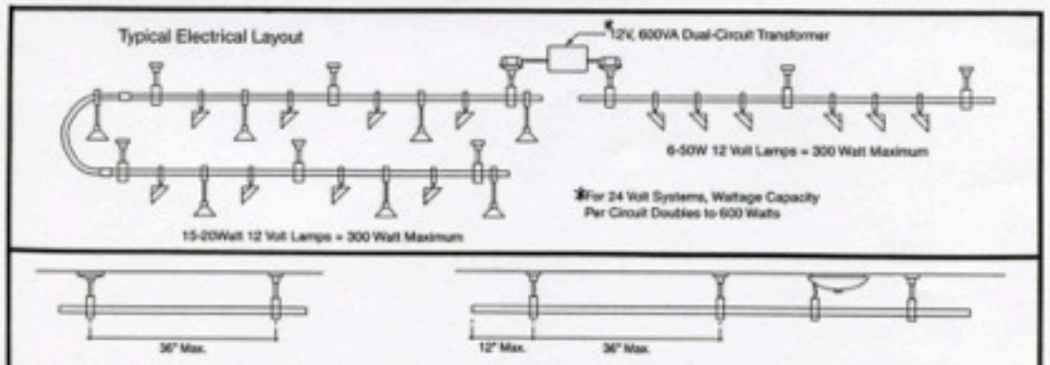
TF90 Canopy for T-Bar Ceilings
Follow steps 1-6 above. At step 7 rotate plate assembly onto T-Bar as shown below and make electrical connections.

All Pendant Stems, Using:
TF92 Mini-Canopy,
TF900 Series Pendant Stem, &
TF22 Mech. Support Cylinder

1- Mount Mini-Canopy to ceiling using toggle bolt. Replace with wood screw if necessary. Use V2037F or V2037D clip for T-bar ceilings. (Ordered separately.)
2- Thread two nuts on bottom of stem. Tighten.
3- Slide cap and collet onto stem.
4- Thread stem tightly into canopy.
5- Thread top cap and Support cylinder together.
6- Push down collet and tighten setscrew.

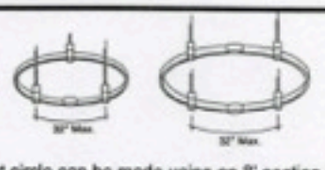
TYPICAL INSTALLATIONS AND LAYOUTS

Flex 12 provides an enormous amount of design flexibility. The following examples show some basic ideas for layouts along with general guidelines that should be applied to any installation.



For a straight 4' trac installation, two supports spaced no greater than 36" apart are required. For a straight 8' trac installation, three supports spaced no greater than 36" apart are required. If a trac lampholder is desired at the free end of the trac, the recommended free span is 12" maximum. In applications where a large number of trac lampholders are to be employed, more supports, more closely spaced may be needed.

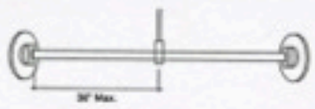
The trac can be bent to a minimum radius of 15" and still successfully receive Feed Cylinders, Support Cylinders and trac lampholders. The trac can be bent as tightly as a 4" radius for design purposes but loses the ability to be safely fed with power or receive lampholders. If uncertain about a desired layout, please consult the factory.



A perfect circle can be made using an 8' section of trac supported at three points 32" apart. This results in a 30.5" diameter circle. Larger circles can be made joining multiple trac sections with supports no greater than 32" apart.

Outriggers should be placed no greater than 36" apart. In applications where a large number of trac lampholders are to be employed, more supports, more closely spaced may be needed.

For sinusoidal waveforms, it is recommended that the supports be located at the "peaks" of the waveform for greater trac stability.



When using a Wall Canopy, the maximum free span of trac before a Feed Cylinder or Support Cylinder is employed is 36".

Trac is field-bendable by hand, by using a wooden or similar form or by using proprietary Juno Portable Trac Bending Machine (Catalog No. TFB100). The use of a full-sized layout drawn on paper of the desired bend(s) is recommended as a template. Since gradual bending of the trac is preferred, a template aids in bending the trac *towards* the final goal without going beyond what is intended.

All copywriting, design, and illustration

Field Photography for Roll Out Catalog

Site scouting, planning, installation, art direction and site remediation. All logistics.

Product Roll Out Meetings and Trade Shows

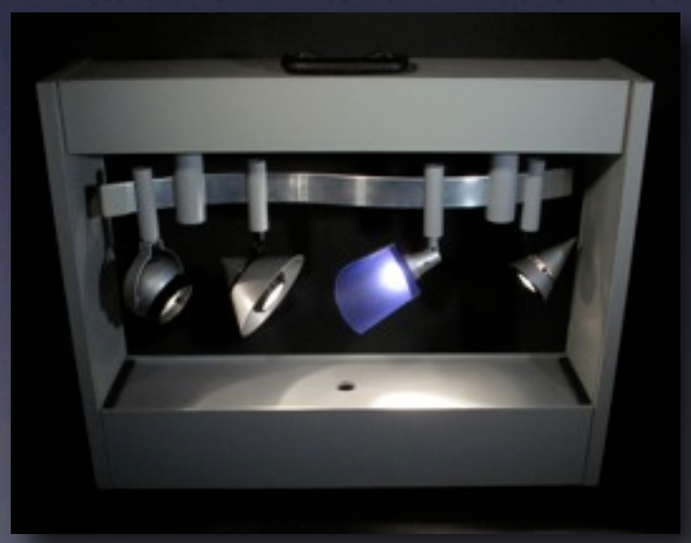
“Trojan Horse”

Designed and built a display that is rolled into room when sales meeting participants are at lunch. Covered in black mesh, fixtures are illuminated to music and fog, then unveiled. Positioned in the middle of the room I was able to talk through each sku and hand samples to the audience. After sales meetings, display is gifted to major distributor for use in showroom. Fabricated with foam board and paper.

Lightfair and Global Shop Intro

Portable Sales Sample Kit - Sales Incentive Tool

All 28 original SKU’s in one quick presentation the size of a small suitcase



National Account Installations

Paradies Airport Shops

O’Hare International Airport

Red Roof Inns

Georgia Aquarium Gift Shop

Flex12 Track System Development and Roll Out - Synopsis

Contributions by Peter Wachter

Electrical, mechanical and aesthetic design of all system components and track fixtures

Project management for all products, prototypes and photography models

Copywriting, design, and illustration of all instruction sheets

Scouting and all logistics for on-site application photography sessions

Design/build displays for roll out national sales meeting. Exhibit design for Lightfair and Global Shop

Art direction for key product shots for roll out catalog

Presenter of Flex12 system at roll out national sales meetings

Design, shop drawings, project management for sales sample case