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Charting a Course to Energy Independence
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New Technologies Induction lighting
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GSA

Induction lighting basics

- Developed by Tesla in 1891
- Uses fluorescent type tube and a generator vice a ballast.
- HPS Ballast-62W Induction Generator-3W
- Each bulb has two couplers - no electrodes
- Color Temperature – 2,700K-6,500K – 85 CRI
- Energy Efficient – 85+ Lumens per Watt
- Instant on – allows use of motion sensors
- Typical light bulb life 100,000 hours
- Light efficacy similar to typical T8 or T5
- 70% of light output at 60,000 hours
- Rated from -40 F to 105 F

Induction lighting basics

- Typical installation in hard to reach places above 10ft or high bay application.
- Instant on lamp vice ballast and heat up
- Install ½ wattage of current HPS or MH lamp
- Cobra head, shoebox, wall pack, high bay pendent
- Hazardous waste
  - Mercury is only in small nodule on bulb
  - After removal bulb is safe to throw away
- Exterior fixtures night sky compliant
  - Direct the light down not out
  - Light increase to the area you need it

MCAGCC lighting project test

- Measured light output photometric 250w HPS vs 120W Induction
  - 3 fc increase under light 1/2fc increase @ 30 ft

Type	size	pwr	life	avg lumens	CRI	eye lumen
HPS	400W	465	24,000	45,000	21	25,650
Ind	200W	203	100K	17,000	80	27,450
MH	250W	295	10,000	17,000	65	25,330

- Energy usage
  - 400watt HPS - 465watts
  - 5 year warranty ballast
  - Lamp life 3-4 year
  - 200 watt Induction - 203watts
  - 10 year warranty all parts

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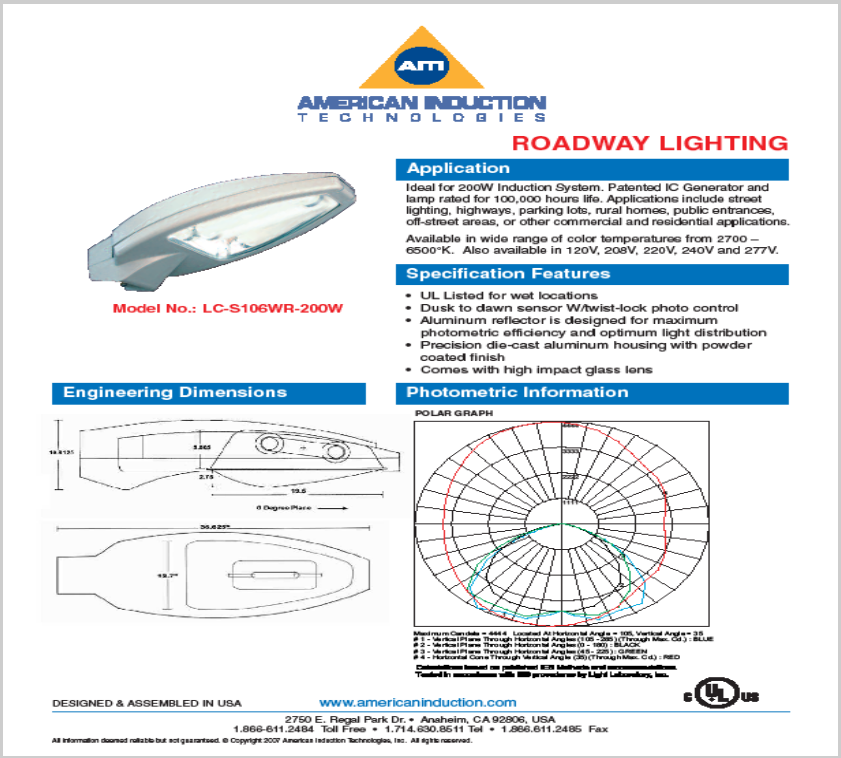
Lighting basics

Typical light 400W HPS

Induction Dark sky 200W



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- Purchase 1334 lights
- Contractor installed - JCI /Novatech/Wonder electric
  - 240 Shoebox $593 fixture+$200 install
  - 857 Cobra head $569 fixture + $200 install
  - 237 Wall pack $599 fixture + $200 install
- Total purchase cost $728
- Interior - Replace indoor pendent gym lighting
- Replace all lights above 10ft with induction
- Considerations – vandalism, hours usage, location, current maintenance , safety lighting

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1588 HPS to induction

1518 MH to induction

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MCAGCC lighting project

- Savings typical 400 watt HPS
- Typical HPS 24K hours lifespan
- 3 replacement bulbs and one ballast kit
- Two man crew with lift
- Bulb($13.00x3)+ballast$112+labor/truck ((($25x2) +$75)x2)+$25x4+150= $648 parts labor
- 262watts x 10hrs x 365d/y /1000= 956kwh $172.13/yr
- Total savings 10 year $1721.30+$648=$2369.30/10yr $236/yr
- Cost of lamp and installation $738 = 3.2yr payback
- 27 year life@10hrs/day

Performance

- Housing areas changed before Halloween - noticed no difference or better light
- Gyms – 30% increased lighting levels
- Maintenance crews are helping to replace lights. Less work over time.
- Failure rate
  - 4 fixture failures –warranty 10 years
  - 10 photocells

Potential problems

- GSA – Buy American Act
  - All fluorescent bulbs made in China
  - CFL, T8, T5, Induction
- No multi-tap generators
  - 120/208-240/277 no 480V
- AIS standards based on total lumen
  - Not based on visible spectrum
  - Design problem for new construction - AIS waiver for installation
- Cost
  - Induction $530
  - CFL $120 $
  - T-8, T-5 HO high bay $180
- Match your need to the fixture. Don’t waste money

MCAGCC lighting project

MCAGCC dark sky initiative