

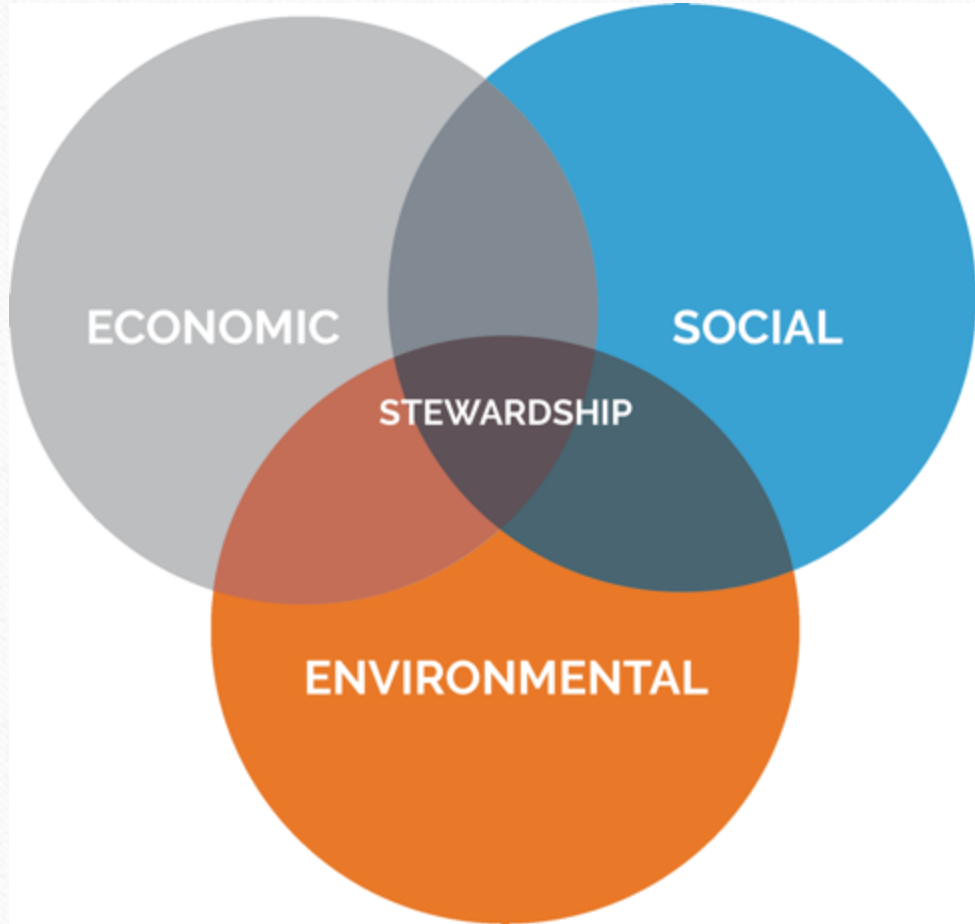
# Duluth Entertainment Convention Center

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Energy Conservation Projects

Joe Tarnowski & Wade Abrahamson

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# Partnership With MN Power

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- Technical Resource
- Help with Lighting Samples
- Help with Layouts/Modelling of projects
- Help with Energy Savings and Payback Analysis



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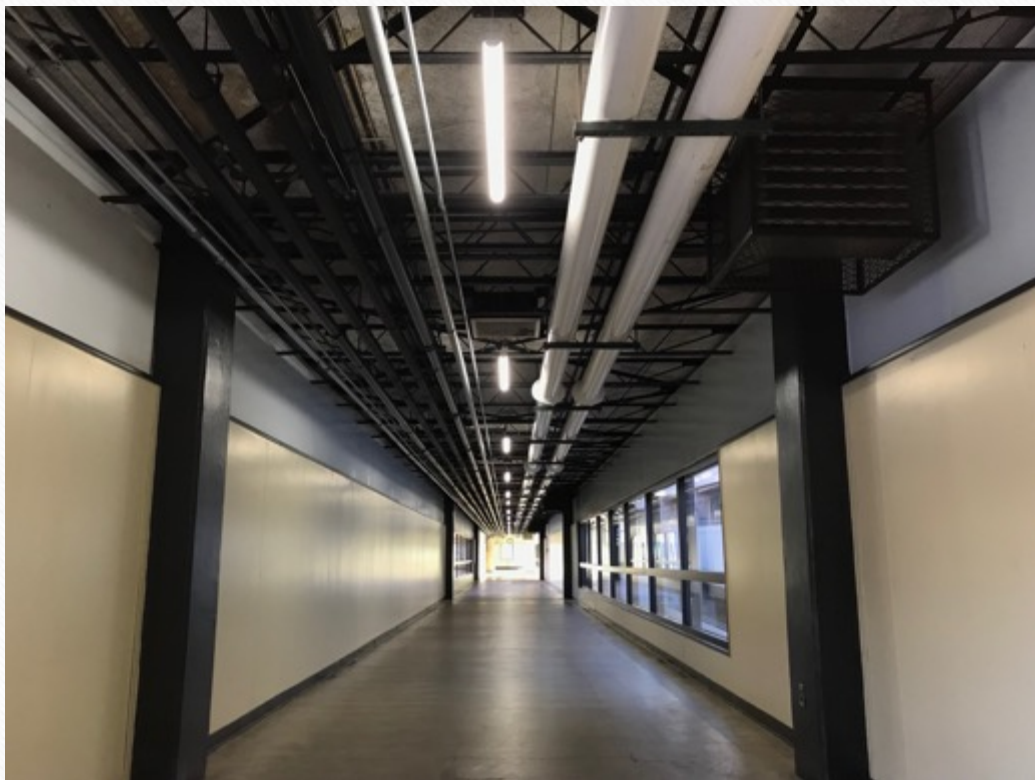
# Lighting

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- Hallway, Skywalks and Kitchen - LEDs
  - Lower Energy Usage
  - Lower Maintenance Costs
  - \$3,100 saved per year
  - \$2,300 MN Power Rebate



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# Lighting

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- Parking Ramp and Support Areas - LEDs
  - Reduced number of fixtures on top floor of parking ramp and added motion controls
  - LEDs in other support areas
  - \$21,000 saved per year
  - \$15,000 MN Power Rebate



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# Lighting

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- Support Areas - LEDs
  - 338 LED 2x2 Retrofit Kits
  - Some are on 24x7
  - Participated in MN Power's \$20/fixture buy down program
  - \$3,000 saved per year
  - \$4,760 MN Power Rebate



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# Lighting Controls

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- Harbor Side Conference Room Controls
  - Lower Hours of Operation
  - Longer Equipment Life
  - \$7,000 saved per year
  - \$6,600 MN Power Rebate



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# Floor Upgrades

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- Insulation under Floor and Pipe Insulation
  - Reduced losses from ground to ice sheet
  - Reduced refrigerated cooling loss from pipes
  - \$10,000 saved per year
  - \$9,500 MN Power Rebate



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# HVAC Controls

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- Variable Frequency Drives on Air Handlers
  - Reduced motor speeds
  - \$2,300 saved per year
  - \$2,000 MN Power Rebate



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