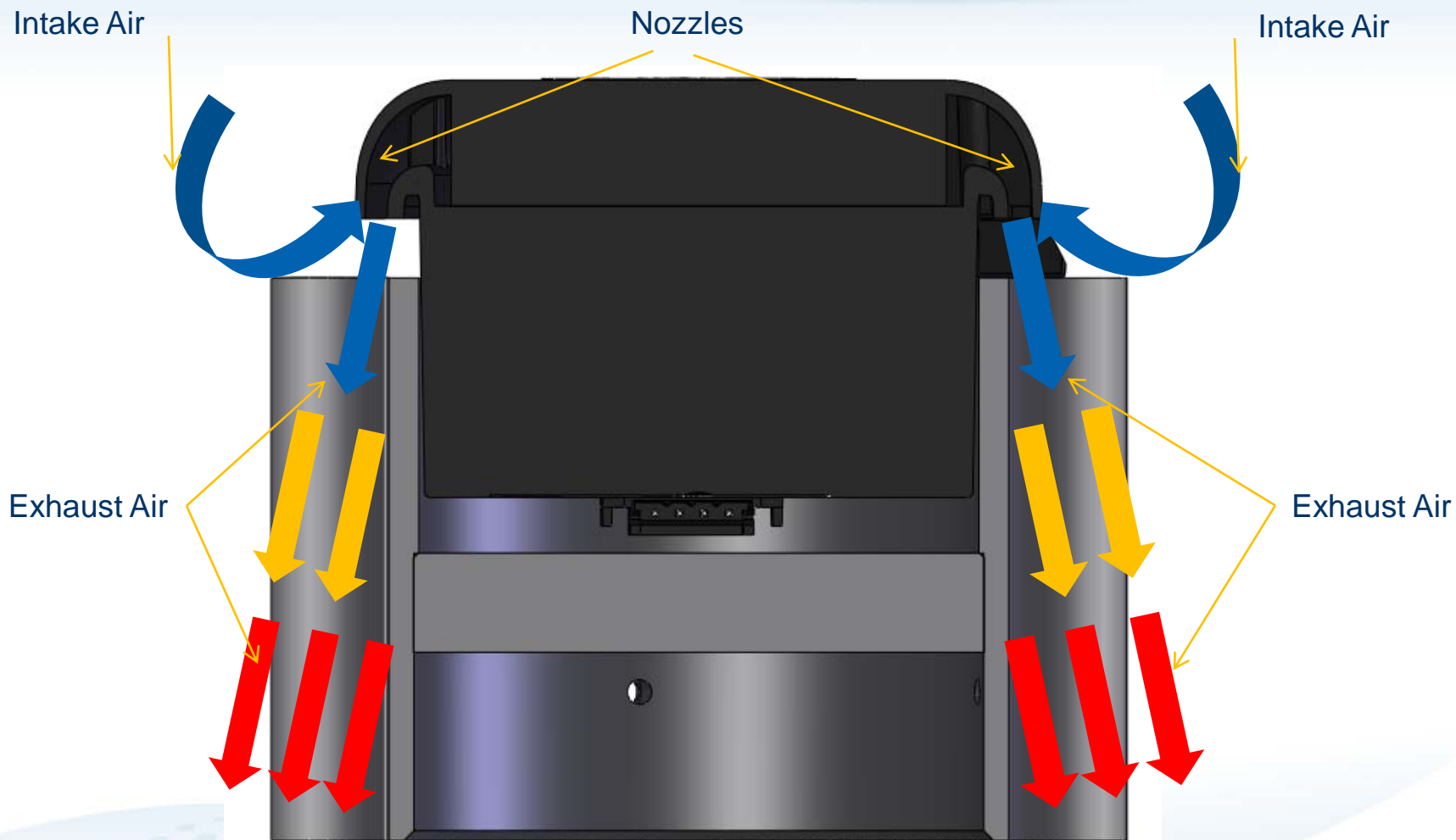




❖ **SynJet Spotlight Fixture Design**
Thermal Recommendations - Basics

SynJet® Airflow Basics



Section View

Fixture Design Considerations - Basics

- The following slides provide basic considerations when designing a SynJet® Spotlight Cooler into an enclosure. It is critical to design the enclosure for minimal impact on system airflow:

- Inlet ventilation openings

- ▶ The SynJet nozzles are both intake and exhaust openings, so the enclosure needs to be designed to have openings or air plenum around the nozzles to sufficiently pull in cool fresh air into the heat sink

- Exhaust ventilation openings

- ▶ The exhaust air from the heat sink needs to be able to exit out of the enclosure, otherwise the air will remain trapped within the enclosure and will heat up. The SynJet will move the heated air out and pull in fresh cool air if the exhaust ventilation openings are present and optimized

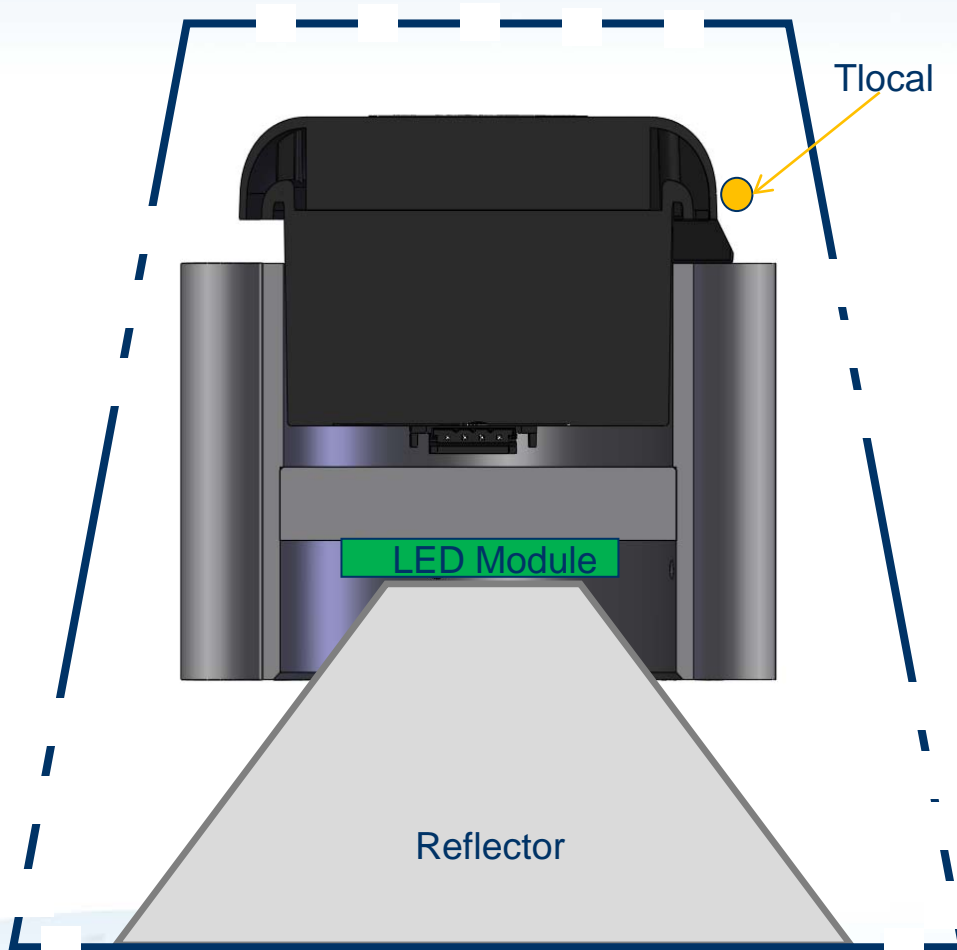
Fixture Design Considerations - Basics

- The following slides provide basic considerations when designing a SynJet® Spotlight Cooler into an enclosure. It is critical to design the enclosure for minimal impact on system airflow:

- Ventilation design
 - ▶ Depends on many variables such as ambient temperature, acoustics, LED module being cooled, so to get an optimized design can take a few iterations to properly size the openings
- Room temperature and local temperature within the enclosure
 - ▶ The ambient temperature around the enclosure (T_{room}) is critical to deciding which thermal solution should be considered as the starting point for the design and the temperature within the enclosure (T_{local}) will determine how well the system is ventilated and will impact the LED module temperature

SynJet® Airflow Basics – Enclosure Guidelines

T_{room}



T_{local}

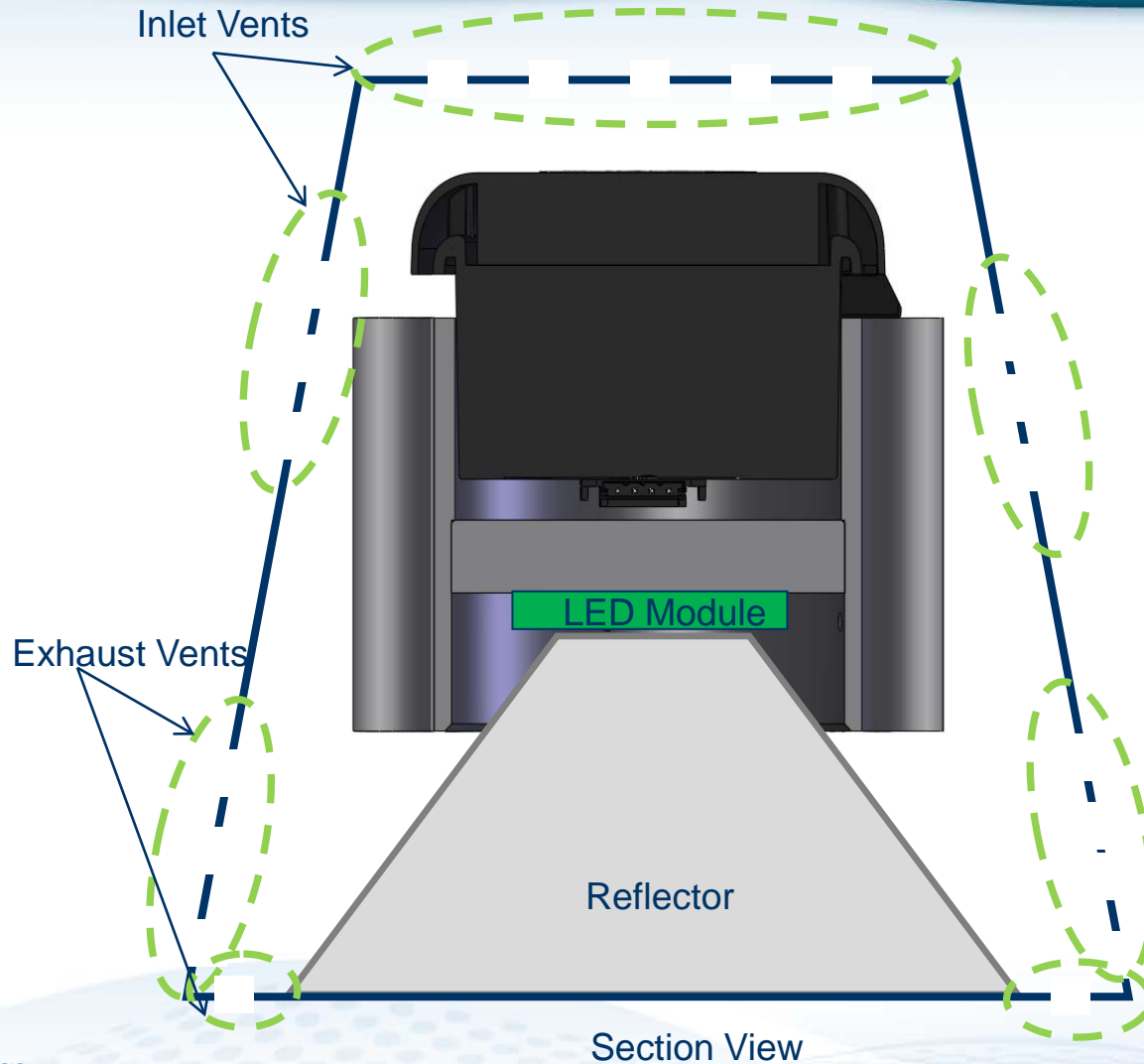
- T_{room} is the temperature around the outside of the fixture far enough removed to not be impacted by fixture
- T_{local} is the temperature within the fixture near the nozzles and is higher in temperature than T_{room}
- Enclosure should be designed to minimize the difference between T_{room} and T_{local}

Reflector

LED Module

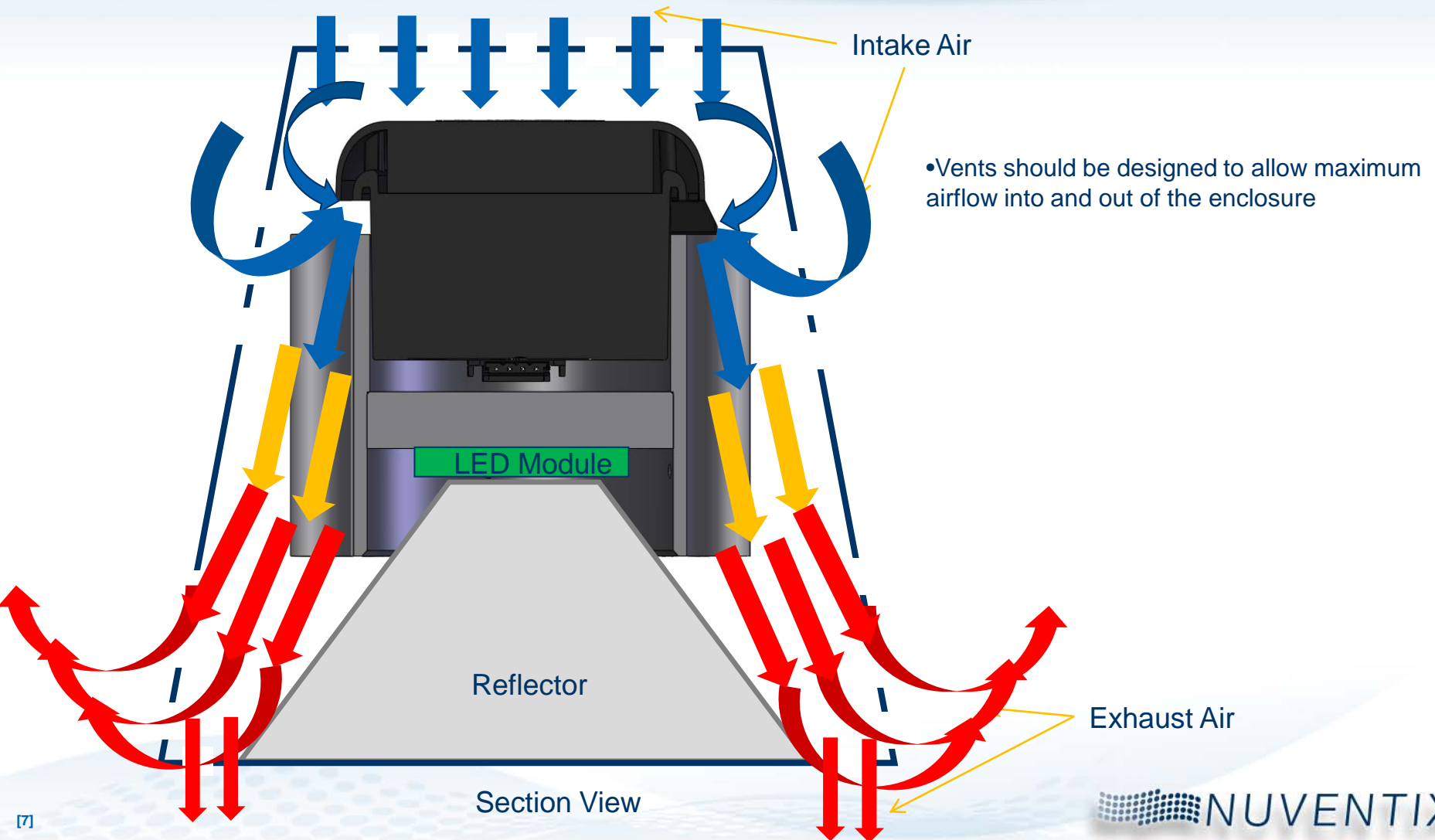
Section View

SynJet® Airflow Basics – Enclosure Guidelines

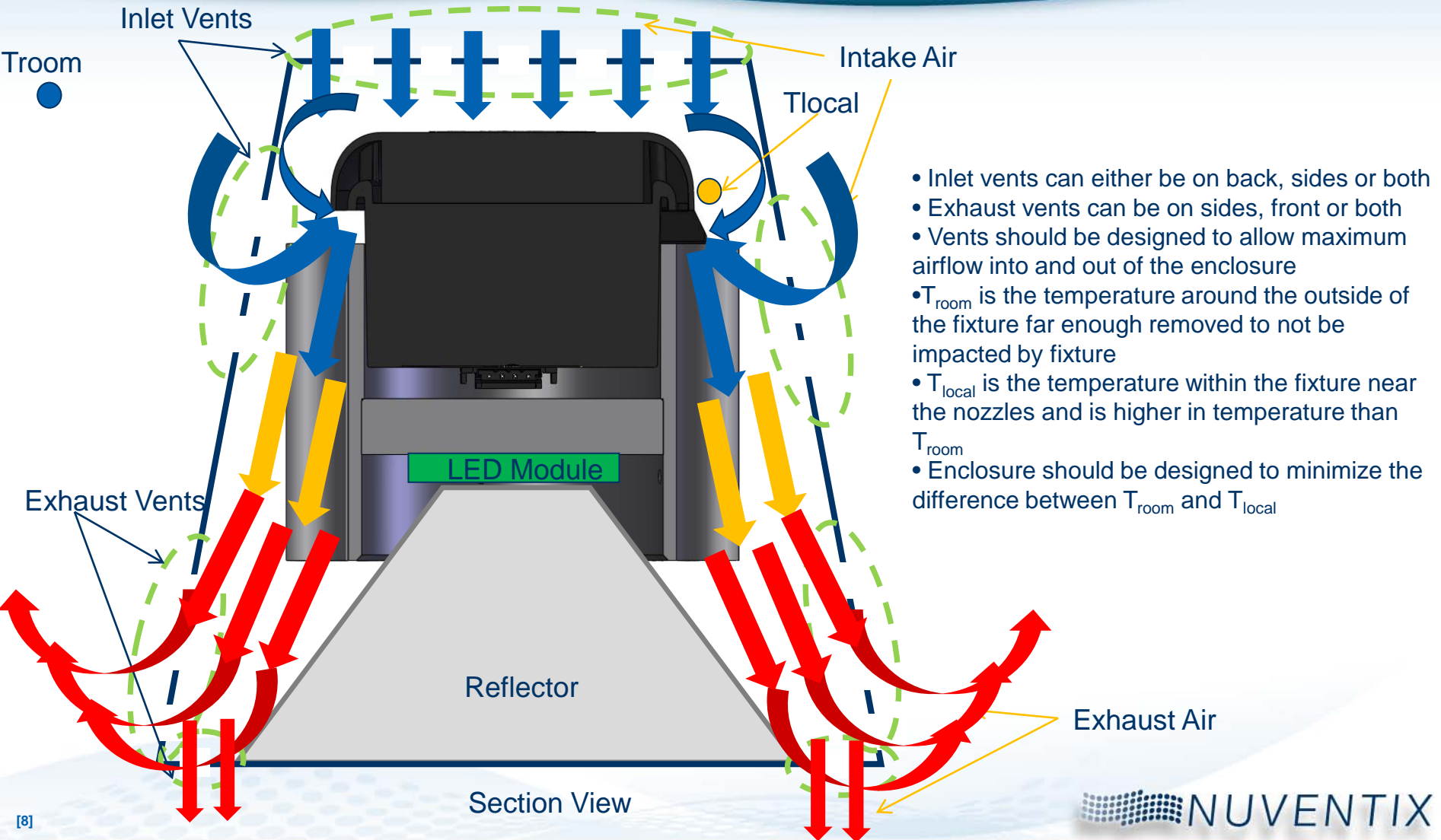


- Inlet vents can either be on back, sides or both
- Exhaust vents can be on sides, front or both

SynJet® Airflow Basics – Enclosure Guidelines



SynJet® Airflow Basics – Enclosure Guidelines



Many designs are possible. These guidelines are just the basics to consider in designing your fixture.

For additional questions or technical support please reach out to your Nuventix sales representative or contact us at the following link.

<http://www.nuventix.com/contact/>