Below is the proposed air and environmental controls for Nalapharms Inc., located at 4309 Hwy 62 S, Belleville K8N4Z7. **EOS Heating & Air Inc**. of Belleville Ontario, and **Icon Air** of Thornhill Ontario has been tasked with the design, installation, and maintenance of the facility. Designing an effective air treatment system for a cannabis grow facility involves several key considerations to ensure optimal plant health, productivity, and compliance with regulatory standards. Here's a detailed outline for such a system:

1. **Air Circulation and Filtration**

Purpose: Ensure proper air circulation and filtration to maintain optimal growing conditions and prevent contaminants.

- **HVAC System:**
  - Install a robust HVAC (Heating, Ventilation, and Air Conditioning) system tailored for cannabis cultivation.
  - Calculate the required capacity based on the facility size, number of plants, and desired environmental conditions (temperature, humidity).
  - Use high-efficiency filters (e.g., HEPA filters) to remove particulates, mold spores, and other airborne contaminants.

- **Air Circulation:**
  - Implement fans or blowers to ensure even distribution of air throughout the grow rooms.
  - Use oscillating fans to prevent stagnant air pockets and promote better CO2 distribution.

2. **Humidity Control**

Purpose: Maintain optimal humidity levels to prevent mold, mildew, and other moisture-related issues.

- **Humidifiers and Dehumidifiers:**
  - Install humidifiers to increase humidity levels when necessary, especially during vegetative growth.
  - Use dehumidifiers to reduce humidity during flowering stages to prevent mold growth.
  - Integrate humidity controllers to maintain set points automatically.

3. **Temperature Regulation**

Purpose: Control temperature fluctuations to create stable and optimal growing conditions.

- **Cooling and Heating:**
  - Size HVAC units appropriately to manage temperature variations.

- Use air conditioning units or chillers to cool air during hot periods.
- Incorporate heaters or heat exchangers for maintaining warmth during colder seasons.

4. **Carbon Dioxide (CO2) Management**

Purpose: Enhance plant growth by optimizing CO2 levels.

- **CO2 Injection Systems:**
- Install CO2 generators or injectors to maintain CO2 levels between 1000-1500 ppm during daylight hours.
- Integrate CO2 sensors and controllers to monitor and adjust levels as needed.

5. **Odour Control**

Purpose: Manage cannabis odour to comply with regulatory requirements and reduce the impact on nearby areas. Cannabis plants begin to produce odour in week 4-6 of their flower cycle. Nalapharms Inc.'s grow system is designed to be a closed room system, with **no** ventilation to the outside.

- **Carbon Filters:**
- Use carbon filters (activated carbon) in each flower room's air circulation system to minimize and trap odour-causing molecules.
- Size filters based on the airflow volume and consider periodic replacement according to internal SOPs.
- Open areas such as hallways and workstations outside of the main flowering and grow should shall be equipped with air purifiers or air scrubbers to minimize odour and possible odour leaks to the exterior environment.

6. **Airflow Management**

Purpose: Ensure proper air movement and distribution within grow rooms.

- **Airflow Monitoring:**
- Install airflow sensors to monitor and adjust airflow rates.
- Use baffles or ducting to direct air where needed, ensuring all plants receive adequate ventilation.

7. **Automation and Monitoring**

Purpose: Optimize system efficiency and ensure consistent environmental conditions.

- **Environmental Controllers:**
- Implement centralized environmental controllers to automate HVAC, humidity, and CO2 systems.

- Integrate with monitoring systems for real-time data on temperature, humidity, CO2 levels, and air quality.
- Enable remote access for monitoring and control.

8. **Compliance and Safety**

Purpose: Adhere to regulatory requirements and ensure workplace safety.

- **Compliance Checks:**
- Verify compliance with local regulations regarding air quality, odor control, and energy efficiency.
- Conduct regular maintenance and inspections to ensure equipment operates safely and effectively.

9. **Maintenance and Upkeep**

Purpose: Ensure longevity and efficiency of the air treatment system.

- **Scheduled Maintenance:**
- Establish a maintenance schedule for HVAC units, filters, fans, and sensors.
- Train staff on proper upkeep and troubleshooting procedures.

By implementing a comprehensive air treatment system tailored to the specific needs of cannabis cultivation, we can create a controlled environment that maximizes plant health and productivity while ensuring regulatory compliance and operational efficiency.