Building a Sustainable Future in Ireland

Sept. 29, 2023 — Construction on Fab 34, the new manufacturing facility at Intel’s Leixlip campus in Ireland, began in 2019. The 17-billion-euro project represents one of the largest construction activities undertaken in Europe and has doubled Intel’s manufacturing space in Ireland. Fab 34 was designed and built with sustainability in mind, as Intel is committed to expanding its operations while minimizing its environmental footprint.

**Sustainable Operations**

Intel released its [Ireland Climate Action Plan](#), which details efforts to reduce greenhouse gas (GHG) emissions, energy use, water use and waste to landfill.

The Leixlip campus continues to implement the electricity purchasing strategy for 100% renewable supply, to return 88% of its water to the River Liffey and in 2022 to send 0.6% of its total waste to landfill. These efforts support Intel’s corporate goals to achieve 100% renewable electricity use across its global operations, net positive water and zero waste to landfills by 2030; net-zero GHG emissions across global operations by 2040; and net-zero upstream GHG emissions by 2050.

**LEED Gold Certification**

Fab 34 is on track to achieve LEED® Gold certification from the U.S. Green Building Council and the Green Building Certification Institute. Upon completion of this certification, Fab 34 will be the largest LEED® certified building in Ireland. Highlights include:

- The new building will be part of the Leixlip campus’ international [ISO 50001 Energy Management System](#) standard.
- Fab 34 is the first Intel manufacturing facility to fully implement LED lighting, which uses a significantly lower amount of power than traditional fluorescent units. The lighting is programmable and sensor-enabled, which means lights won’t be left on in unoccupied areas.
- Energy metering will provide valuable information regarding building performance and to drive mechanical and electrical system efficiencies.
- The project sourced low-emitting materials to support indoor air quality, including low-emitting to zero VOC paints, adhesives and sealants. This material is also being used in raised metal flooring.
- The facility design incorporates a method to recover waste oxygen from the air separation units, which results in reduced requirement for transport of oxygen tankers from off-site.
- More than 298,000 tons of waste has been recycled since the beginning of the project.

**Heat Recovery in Fab 34**

When fully operational, the buildings will use a 9:1 ratio of heat generated by heat recovery versus heat generated by traditional methods.

- Incorporated heat recovery systems will maximize the collection and use of low-grade heat generated by the manufacturing process. This allows the factory to select air handlers and heat exchangers to use low-grade heating water generated by the heat recovery system,
thereby maximizing the number and size of heat recovery chillers the system could use to produce the heat required by the buildings.

- The amount of high-grade heat generated by burning natural gas was minimized to only where absolutely required by the production process.
- By using an energy mapping method during the design, additional sources were identified that could be used to recover waste heat.

**Water Conservation**

Intel has installed an ultra-pure reclaim water system to reclaim process waters from the factory operations, which can then be re-used in the facilities.

Fab 34 will also benefit from Intel’s innovative nanofiltration system. The system captures water that is rejected during the on-site reverse osmosis process and redirects it for use in other areas of manufacturing. When fully implemented, the project is expected to conserve up to 275 million gallons of water a year.

**Low-Carbon Cement**

The majority of cement used in Fab 34 was characterised as low carbon due to the integration of recycled content.

To create the low-carbon solution, ground granulated blast furnace slag (GGBS), a recycled material, is used in the mix to increase the recycled content of the concrete and reduce the environmental impact of a structure or precast element. GGBS is a byproduct from steel production, as leftover material from steel mills is ground down and used to create this alternative. It is typically half as polluting as normal cement and produces fewer carbon dioxide emissions.

**Off-Site Manufacturing**

Fab 34 used a significant amount of off-site manufacturing, which means constructing, assembling and staging some modular units away from the main site and transporting the units in. Off-site manufacturing enables greater precision and predictability while lessening some of the heavy on-site construction activity. It can often be a more sustainable approach.

- Off-site manufacturing moves significant elements of the construction process from the building site to a location with better control of aspects like light and heat. Ultimately, this offers greater opportunities for efficiencies.
- Constructing modules off-site reduces the overall number of deliveries needed at the building site. By using precast elements, 800 fewer truck deliveries were needed just in the construction of the on-site multi-story carpark.
- Off-site manufacturing also reduces noise and ground disturbance. When the modular units are delivered, they are typically installed directly into their final position without additional work required. This also reduces waste generation at the construction site.

**Fully Electronic Commissioning**

For the first time on an Intel construction project, the commissioning process has been electronic, eliminating the need for paper documents. To date, more than 6 million documents have been processed electronically. This is estimated to have eliminated the need for 30 million sheets of paper, or 3,000 trees.
Flexible Mobility Options

Intel Ireland has provisions in place to support flexible commuting options that reduce Scope 2 greenhouse gas emissions and benefit employees. As part of the Fab 34 project, a new commuter plaza was built at the Intel campus. Flexible commuting options include:

- **Cycling and walking**: Intel has secure weather-proof bicycle parking adjacent to all main entrances for employees to park their bikes. Intel also provides storage lockers and shower facilities in main office buildings for those who need them.
- **Train and bus**: Intel offers the Tax Saver plan to employees through which employees can purchase train and bus tickets at a reduced rate. There is a bus stop on campus and a train station within walking distance.
- **Car-pooling**: Intel has an internal website and database to help employees set up car-pool groups and meet others interested in car-pooling. Intel has priority car-pooling parking spaces adjacent to main building entrances.
- **Shuttle bus**: Intel provides a free shuttle to transport employees from Celbridge to Leixlip.
- **Electric vehicles (EV)**: There are 44 EV charging points located across the campus car parking facilities.

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About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore’s Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers’ greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel’s innovations, go to newsroom.intel.com and intel.com.

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