ITUCALC RHC SELECTION TOOL!

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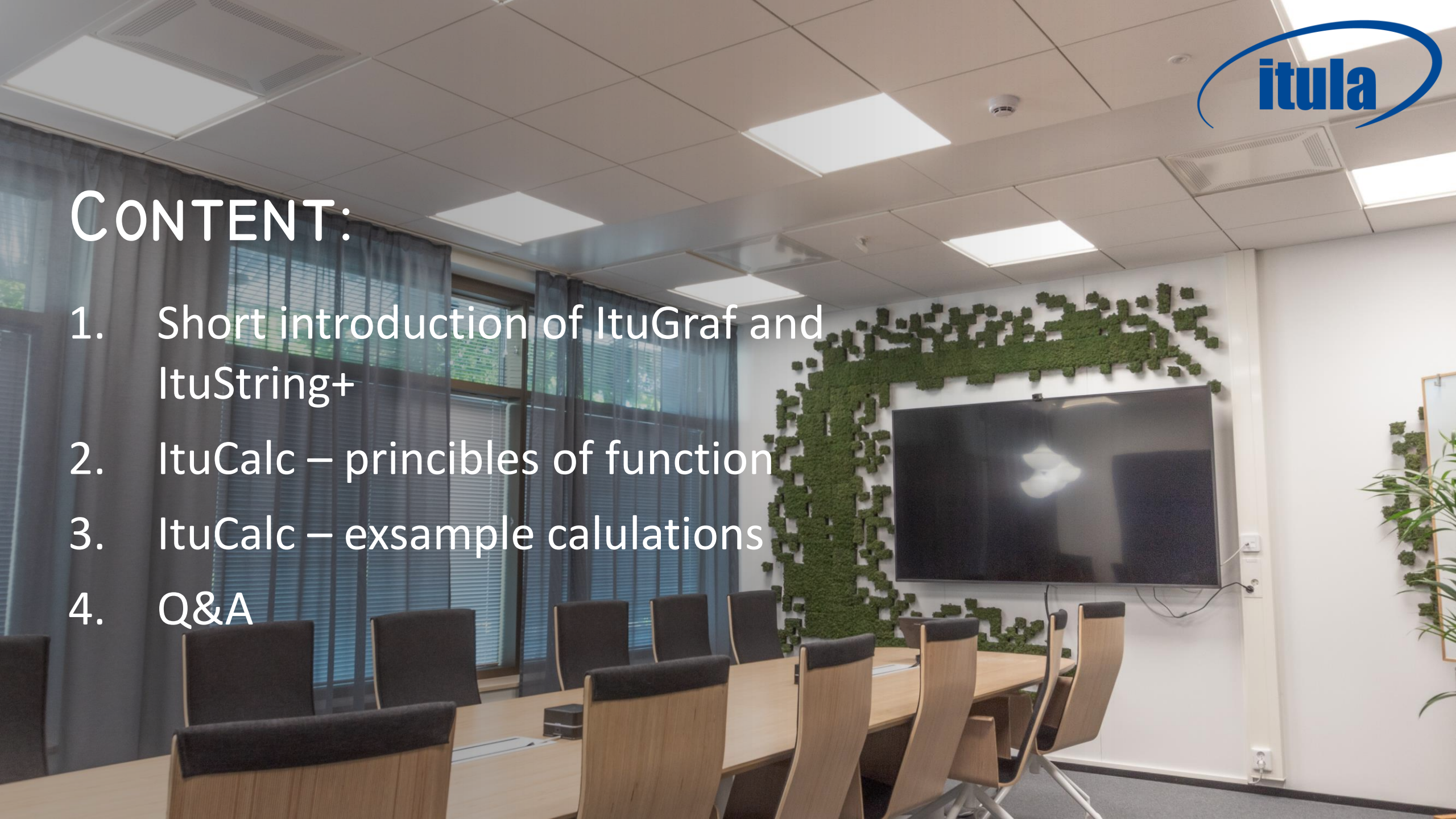
Practical items for Teams Participants:

- ✓Let’s keep microphones muted
- ✓You can aks questions during presentation – rise your hand (Teams chat is not in use)
- ✓Short Training session about 30 minutes



Content:

1. Short introduction of ItuGraf and ItuString+
2. ItuCalc – princibles of function
3. ItuCalc – exsample calulations
4. Q&A

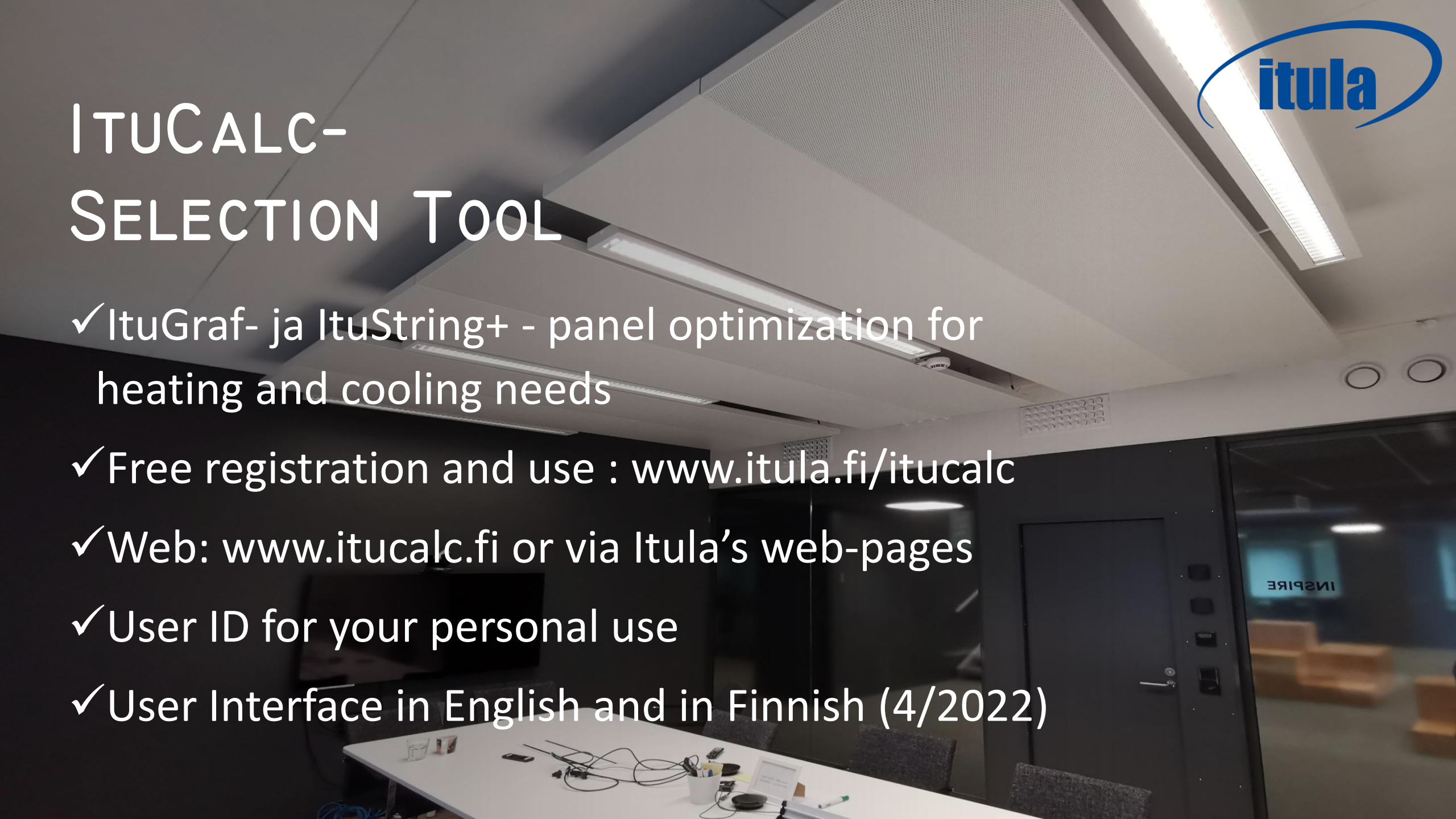
Radiant Panel Heating and Cooling - Energy Saving and Best Indoor Comformt
ituGraf®
itula
ituString®+

ITUGRAF

- ✓Efficient Heating and Cooling for Offices, Accommodation Buildings, Service Houses, Hotels, Hospitals, Schools and Public Premises
- ✓ItuGraf integrates with Saint-Gobain Ecophon and Rockfon –suspended/acoustic ceilings
- ✓Integrations of LED-lights, smoke sensors and sprinklers, electric and data communication sockets, supply air anemostats and maintenance openings

ITUSTRING+

- ✓Modular RHC Panel System for Industrial Halls, Logistic Centres, Shopping Malls, Sport Halls, etc.
- ✓Suitable for 3-30 meter elevation installations, up to 100 meter long stripes
- ✓For new Buildings as well as for Renovations
- ✓Excellent also with Heat Pumps and low-temperature heating systems
- ✓Can be used both for heating and for cooling
- ✓Tested for ball impacts and EC marked product



ItuCalc-
Selection Tool

- ✓ItuGraf- ja ItuString+ - panel optimization for heating and cooling needs
- ✓Free registration and use : www.itula.fi/itucalc
- ✓Web: www.itucalc.fi or via Itula’s web-pages
- ✓User ID for your personal use
- ✓User Interface in English and in Finnish (4/2022)

ItuCalc-Selection Tool

- ✓ Upper Menu: Select language ENG/FIN and ItuGraf or ItuString+ -optimization
- ✓ Calculation
  - ✓ Program calculates panel output and total output selected panels, flow-rate and pressure loss, and over/under temperature dT and output power W/m2 of panel total surface
  - ✓ Helps select a suitable valve and the actuator
- ✓ Selection
  - ✓ When total output need is known, calculates the total number of 595 mm wide ItuGraf panels or total meters of ItuString-1 320 m wide panels
- ✓ Results can be saved in PDF and selected panel or combination of two ItuGraf panels into a DXF

ItuCalc-
Selection Tool

- ✓You can download all details of calculation into a PFD format
- ✓You can store into My Project the intermediate results of calculations and make a printout later
- ✓You can select panels for calculations eg. room by room into your My Project and list all rooms into one PDF

ItuCalc in action...

www.itucalc.fi

Calculation Example

- ✓Office room 10 m²
- ✓Simulated cooling need 60 W/m² ja and estimated heating need 40 W/m²
- ✓Cooling 15W/m² with supply air and with ItuGraf panels 45 W/m²
- ✓Cooling network 14-16 C, Room temperature max. 25 C, dT=-10 K and we are looking for S2 Indoor Comfort Quality
- ✓Ultra Low Heating network with 37-32 C and Room temperature 21 C, dT=13,5 K

Calculation Example Cooling

- ✓Cooling network 14-16 (25)
- ✓Panel Cooloing request 450 W (10 M2 * 45 W/M2)
- ✓Under temperature in use dT=-10
- ✓Operation Mode Cooling – ItuGraf select suitable width (595/895/1190 mm) and length (595-2990 mm) according to the dimensions of the room – you may change both and see immediately calculated power output
- ✓Let’s select two pcs of ItuGraf 595 x 2990 mm graphite panels each giving 237 W/pcs and parallel connected total ouput is 473 W cooling

Calculation Example Heating

- ✓Heating network 37-32 (21)
- ✓Total heating capacity request in the room 10 m² x 30 W/m² = 300 W
- ✓Ultra low network temp 37/32 C
- ✓Over temperature dT=13,5 K
- ✓Let’s select suitable ItuGraf-panel(s) for this room
- ✓One 595 x 2990 mm ItuGraf graphite panel gives 312 W heating
- ✓Optimal solutions for heat pumps, also

Calculation Example
Cooling and Heating for 10 m² Office

- ✓For Cooling 2 pcs and for Heating 1 pcs of ItuGraf 595 x 2990 mm panels needed
- ✓Into the room we select one pcs of 1-circle panel IG35-595-2990-**1**-V connected to cooling and one pcs of 2-circle panel IG35-595-2990-**2**-V connected both to cooling and to heating network
- ✓Cooling flowrate 0,028 l/s per panel ja heating flowrate 0,015 l/s. ItuCalc calculates the flowrate turbulence. If not turbulent flow ItuCalc warns you, and deducts from output power -15%. You are on safe side allways!
- ✓Pressure loss in panels: Cooling 10 kPa (parallel connection) and Heating 3 kPa. Over 25 kPa pressure losses gives alarm to you. Please, change return temp. or connection type.

Thank You!

Questions / Comments?

More information at: www.itula.fi