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2.9.2 Thermal Comfort Score (TCS)

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Author/s and affiliations: Florian Kraus¹, Bernhard Scharf¹

¹ *Green4Cities GmbH/GREENPASS GmbH*

Thermal Comfort Score (TCS)	Climate Resilience
Description and justification	<p>The TCS (Thermal Comfort Score) is one out of five Key Performance Scores of the GREENPASS® system.</p> <p>It's based on the calculation of the frequency distribution of areas with thermo-physiological stress according to the PET classification. It describes the thermal comfort of humans in one single number for a selected area.</p> <p>The indicator describes the mean thermal comfort, which is the crucial parameter for humans (not air temperature). It allows to understand and compare the thermal comfort of any given area with ease.</p>
Definition	<p>The TCS (Thermal Comfort Score) gives a weighted information of the mean PET on face level.</p>
Strengths and weaknesses	<ul style="list-style-type: none"> + worldwide standardized key performance score regarding human thermal comfort + easy for communication, understanding and decision-making

	<ul style="list-style-type: none"> + useful for design optimization + applicable for detailed vulnerability group analysis (e.g., Child, Elderly) - needs simulation
Measurement procedure and tool	<ul style="list-style-type: none"> - modelling, simulation tools and GREENPASS® analysis and calculation - numerical value (TCS score 0-100)
Scale of measurement	Object and neighbourhood scale
Data source	
Required data	<ul style="list-style-type: none"> - PET (physiological equivalent temperature) at face level - project area incl. geoposition - NBS typology
Data input type	<ul style="list-style-type: none"> - mean radiant temperature (MRT), relative humidity (RH), wind speed (v), vapour pressure (VP) - 3d model with surface and vegetation types incl. characteristics - human type (age, gender, size, clothing and metabolism,...)
Data collection frequency	- one to several times in planning and optimization process
Level of expertise required	easy to understand – for planners and decision makers
Synergies with other indicators	Based on the input of indicators for 'Human comfort: Physiological equivalent temperature (PET)' and 'Universal Thermal Climate Index (UTCI)'.
Connection with SDGs	SDG 3 Good Health & Well-being, SDG 11 Sustainable Cities and Communities, SDG 13 Climate action
Opportunities for participatory data collection	-
Additional information	
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Nature4Cities, D2.1 - System of integrated multi-scale and multi-thematic performance indicators for the assessment of urban challenges and NBS.

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Nature4Cities, D2.2 - Expert-modelling toolbox

Nature4Cities, D2.3 – NBS database completed with urban performance data

<https://www.nature4cities.eu/post/applicability-urban-challenges-and-indicators-real-case-studies>

Nature4Cities, D2.4 - Development of a simplified urban performance assessment (SUA) tool