Wind tunnel tests typically investigated late in the process. Long process for testing new designs. Limited number of wind tunnels available.


Thorough verification against experimental measurements:
- Data from 4 different wind tunnel facilities
- Several different shapes
- Multiple wind directions
STRIKING VISUALS FOR ENHANCED UNDERSTANDING OF THE FLOW PATTERNS ... AND FOR PEDESTRIAN COMFORT INVESTIGATIONS
INFLOW CONDITIONS COMPLIANT TO SPECIFIC TERRAIN CATEGORIES

2. DIGITAL WIND TUNNEL
ACCURATE PEAK WIND LOADING PREDICTIONS

mean pressure coefficients $\bar{C}_p$

fluctuating pressure coefficients $C'_p$

WIND TUNNEL

DIGITAL WIND TUNNEL

2. DIGITAL WIND TUNNEL
ACCURATE PEAK WIND LOADING PREDICTIONS

MEAN AND FLUCTUATING PRESSURES WITHIN 2% AND 10%, RESPECTIVELY.

2. DIGITAL WIND TUNNEL
2. DIGITAL WIND TUNNEL
MULTIPLE STUDIES ON A SINGLE SIMULATION:

1. PEDESTRIAN COMFORT AND SAFETY
2. OUTDOOR THERMAL COMFORT
3. POLLUTANT DISPERSION
4. WIND LOADING

2. DIGITAL WIND TUNNEL
EXAMPLE PLAN FOR THE DIGITAL APPROACH

3. EXAMPLE PLAN

- **COST SAVINGS AND REDUCED CARBON FOOTPRINT**
- **FAST TURN AROUND TIME, IDEAL FOR DESIGN OPTIMIZATION**
- **WIND TUNNEL TESTS TYPICALLY EXECUTED TOO LATE IN THE DESIGN PROCESS**

**EXAMPLE PLAN FOR THE DIGITAL APPROACH**

- **3. EXAMPLE PLAN**
WE HAVE BENCHMARKED THE CAARC BUILDING FOR MULTIPLE WIND DIRECTIONS AND CORNER MODIFICATIONS

**A REFERENCE PROJECT**

- **Sharp-edged**
- **Chamfered**
- **Rounded**

**PUBLICATIONS**

