

Cuming
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In addition, the environmental situation is negatively affected by the stagnation of air masses caused by natural and climatic factors, such as no-wind conditions, surface temperature inversion (Fig. 2) [10]. Temperature inversion in some regions can occur throughout the year.

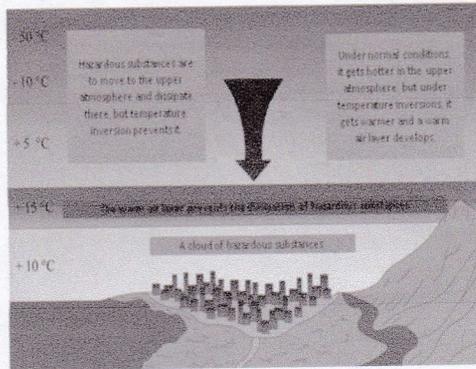


Fig. 2. Surface inversion of temperature.

Public space in residential areas is a living environment and one of the most important parts of the city's air basin. The natural wind regime in public residential areas of a modern city is affected by high density of high-rise buildings, and the air has a higher concentration of pollutants due to lack of the air exchange. Getting into the lungs of urban residents together with the inhaled air, pollutants modify gas exchange and cause oxygen starvation, thereby causing asthma or its aggravation and other lung diseases. Thus, the issue of aeration of areas with high-rise buildings is becoming increasingly important. In this regard, the most interesting are the convective currents that arise when the temperature difference between the surfaces of facades of buildings and public spaces.

In the city, the differences in the heating of open and shaded sections of streets and public space influence the local air circulation. Ascending flows concentrate above the surface of the walls exposed to light, and descending flows concentrate above the shaded walls [3]. The presence of water bodies in the cities contributes to the development of local circulation from the water body to the urban areas at daytime, and in the opposite direction at night. The speed of air flows at the outer surface of buildings, due to the difference in the temperatures of the surface of the enclosing structure and the outside air, can reach up to 10 m/s and plays an important role in the air exchange of the adjacent space (Fig. 3) [1]

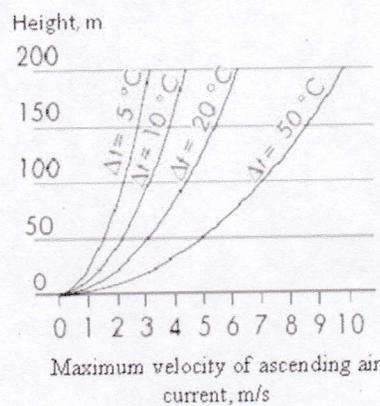


Fig. 3. Dependence of the speed of ascending flows on the height.