Figure 1: An izba is a traditional Russian country residence which can best be described as a type of log cabin. Being suited to the colder climate of St. Petersburg, construction of the izba did not use metals such as nails because such materials were expensive in Russia. The interior and exterior were made of split tree trunks, the gap between which were filled with clay. The result created an insulating wall that was able to resist air drafts from the cold exterior climate of harsh Russian winters.

In the center of the izba stood the Russian oven. The Russian oven, which was a unique type of stove that first appeared in the 15th century, was used for cooking and heating. The stove burnt firewood such as birch or pine. Aspen was used less frequently as twice the amount was needed to produce the same heat output of other woods when combusted.

The cold air enters the Russian stove and is heated by the fire. The warm air then circulates through the stone labyrinth along the interior folds of the structure. The warm air then heats the stone masonry warming the interior of the izba, while smoke exhaust exists the top flue.

A Russian oven is designed to retain heat for long periods of time, by channeling the smoke and hot air produced by combustion through a complex labyrinth of passages warming the bricks from which the oven is constructed.
Pulkovo Airport

The Pulkovo Airport is a modern building, completed in 2014, that responds to the climate and heritage of St Petersburg. The terminal and roof were designed to respond to the extreme climate of the city. The roof is created from a series of 18m bays which were made to act as hoppers. The interior is made up of separated zones which symbolize the islands and bridges in St. Petersburg. The idea behind the building itself was carried out into the surrounding city's master plan. The drive up is composed of a sculpture lined boulevard that represents the wide avenues, and ends in a large square to represent its past, present and future environments.

![figure 1: view of the exterior of the Pulkovo airport](image)

![figure 2: the roof is created by a series of 18m bays which act as large hoppers designed to accommodate the extreme climate experienced by the city](image)

Figure 3: this chart represents the sun's relationship to the airport. The airport takes advantage of opportunities for solar gain through the glazing on its southern elevation.

Cultural Context to Public Space in St. Petersburg

Post-soviet Russia is currently struggling with the idea of public space. Previously, public space was any area where people could gather, but its usage was to be determined by the government, and there was a constant presence by police forces. The mode of public spaces in socialist cities were caused by the political, economic, and ideological characteristics of the soviet era, which had to be redone in the fall of the communist rule. While there have been significant changes to every day urban life, traces of the soviet past still shape the modern culture of cities and the citizens identities.
Water in St. Petersburg

The situation with tap water in St. Petersburg has recently improved, with a new purifying plant in the city bringing the water supply up to international standards of safety, at least at source. Unfortunately, the pipe system in many districts and buildings is very old and neglected, and by the time the water comes out of the tap it often has quite high levels of heavy metals - and may be a rather unpleasant yellow color. Therefore it's still probably safer to drink bottled water, unless there's a filter system installed where you're staying.

Figure 1: Diagram of the wind chart for the region surrounding St. Petersburg. The area receives relatively cold and dry winds throughout the year from the north-west direction. Credit: Climate Consultant

Figure 2: The sun shading chart shows the extreme cold temperatures and scarcity of sun throughout the year especially in the winter months. Solar gain can be maximized at noon, and creates a comfortable temperature from the months of April to June.

Figure 3: The psychrometric chart displays the need for heating and humidification for structures in this region. In order to reach the comfort zone design strategies that result in internal heat gain are necessary to combat against the cold temperatures of this climate region.
Works Cited


