

Table of Contents

1. Introduction.....	1
2. Objectives, Scope, Content of the Thesis	2
3. Method of Scientific Work	3
4. Literature Review.....	4
4.1 Overview of building conversion practices and research	4
5. Heat Transfer Analysis	7
5.1 Conduction-based heat transfer in building materials: theoretical background for this study	7
5.1.1 Two-dimensional conduction heat transfer: temperature distribution and heat flux.....	7
6.The Importance of Identifying Buildings Suitable for Conversion in Post-Industrial Areas	9
6.1 Post-industrial settlements in the context of energy rehabilitation	9
6.2 Case study of a post-industrial locality in the Ostrava-Karvina.....	10
7. Numerical Analysis and Theoretical Framework for the Retrofit of Perimeter Walls	11
7.1 Building envelope thermal analysis framework.....	11
7.2 Identification of envelope materials for thermal efficiency	12
7.3 Validation of the Numerical Model.....	16
7.4 Model description and numerical analysis of perimeter wall variants	17
7.4.1 Boundary condition.....	19
7.5 Results and discussion.....	20
7.6 Practical Outcomes.....	28
7.6.1 Comparative life cycle assessment (LCA) of different wall configurations	29
7.7 Integrated Discussion	30
8. Conclusion and Recommendations.....	32
8.1 Conclusion.....	32
8.2 Recommendations	34
References.....	35
Related Author's Publications	40
Projects.....	40