

Office building  
Conditioned space volume 1 772 m<sup>3</sup>

| ENERGY SAVING PACKAGE | CONTENT — individual energy saving measures   |                       |      | primary energy (kWh/m <sup>2</sup> per year) | Primary energy saved (kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |         | Emissions saved CO <sub>2</sub> (kg/(m <sup>2</sup> per year)) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/m <sup>2</sup> per year) | Share of renewable energy (excl. appliances), % |       |
|-----------------------|---|-----------------------|------|--|--|--|---------|---------|--|--|--|---|-------|
|                       | Parameter   | Value                 |      |  |  | Class D  | Class E | Class F |  |  |  |   |       |
| Package 1             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4  | 156,54                                       | 343,96   | 57,75  | 65,25   | 71,56   | 99,31  | 137,48   | 12,71  | 42,89   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,25 |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,28 |  |  |  |         |         |  |  |  |   |       |
|                       | Installation of a biomass-fuelled boiler (heat plant using pellets)                                 | η, %                  | 88   |  |  |  |         |         |  |  |  |   |       |
|                       | Ventilation — Domestic Hot Water (DHW) system — Installation of a direct-evaporation heat pump      | SCOP                  | 4    |  |  |  |         |         |  |  |  |   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
| Package 2             | Installation of a direct-evaporation heat pump  | SEER                  | 4,5  | 137,52                                       | 362,98   | 62,88  | 69,47   | 75,02   | 104,80   | 171,45   | 12,02  | 52,63   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1  |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22 |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,22 |  |  |  |         |         |  |  |  |   |       |
|                       | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                  | 88   |  |  |  |         |         |  |  |  |   |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4    |  |  |  |         |         |  |  |  |   |       |
| Package 3             | Heat recovery   | η, %                  | 70   | 132,14                                       | 368,36   | 64,34  | 70,67   | 76,00   | 106,35   | 223,54   | 8,93   | 41,46   |       |
|                       | Installation of a direct-evaporation heat pump  | SEER                  | 4,5  |  |  |  |         |         |  |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1  |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22 |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,22 |  |  |  |         |         |  |  |  |   |       |
|                       | Installation of a direct-evaporation heat pump  | SCOP                  | 5    |  |  |  |         |         |  |  |  |   |       |
| Package 4             | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4    | 126,91                                       | 373,59   | 65,75  | 71,83   | 76,95   | 107,86   | 233,15   | 7,79   | 41,77   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
|                       | Cooling — Air-to-water water cooler   | SEER                  | 4,5  |  |  |  |         |         |  |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 0,9  |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,15 |  |  |  |         |         |  |  |  |   |       |
| Package 5             | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15 | 127,88                                       | 372,62   | 65,48  | 71,61   | 76,77   | 107,58   | 237,73   | 10,80  | 49,13   |       |
|                       | Installation of a direct-evaporation heat pump  | SCOP                  | 5,5  |  |  |  |         |         |  |  |  |   |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4    |  |  |  |         |         |  |  |  |   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
|                       | Cooling — Installation of a direct-evaporation heat pump  | SEER                  | 4,5  |  |  |  |         |         |  |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
| Package 6             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4  | 160,06                                       | 340,44   | 56,80  | 64,47   | 70,92   | 98,29  | 125,75   | 1,86   | 5,73  |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,25 |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,28 |  |  |  |         |         |  |  |  |   |       |
|                       | Installation of a gas-fired boiler  | η, %                  | 93   |  |  |  |         |         |  |  |  |   |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4    |  |  |  |         |         |  |  |  |   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
| Package 7             | Installation of gas-fired boiler  | η, %                  | 93   | 139,17                                       | 361,33   | 62,44  | 69,11   | 74,72   | 104,32   | 158,99   | 14,06  | 56,83   |       |
|                       | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                  | 88   |  |  |  |         |         |  |  |  |   |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4    |  |  |  |         |         |  |  |  |   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
|                       | Domestic hot water (DHW) system — Installation of a biomass-fired boiler (heat plant using pellets) | η, %                  | 88   |  |  |  |         |         |  |  |  |   |       |
|                       | Cooling — Installation of a direct-evaporation heat pump  | SEER                  | 4,5  |  |  |  |         |         |  |  |  |   |       |
| Package 8             | Energy-efficient lighting   | η, %                  | 70   | 142,25                                       | 358,25   | 61,60  | 68,42   | 74,16   | 103,43   | 205,11   | 1,11   | 4,74  |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4  |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22 |  |  |  |         |         |  |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15 |  |  |  |         |         |  |  |  |   |       |
|                       | Heating + Ventilation — Central heating (substation)  | η, %                  | 100  |  |  |  |         |         |  |  |  |   |       |
|                       | Heat recovery   | η, %                  | 70   |  |  |  |         |         |  |  |  |   |       |
| SUMMARY RESULTS       |   |                       |      | minimum                                      | 128,91   | 340,44   | 56,80   | 64,47   | 70,92  | 98,29  | 125,75   | 1,11  | 4,74  |
|                       |   |                       |      | Maximum                                      | 160,06   | 373,59   | 65,75   | 71,83   | 76,95  | 107,86   | 237,73   | 14,06   | 56,83 |
|                       |   |                       |      | average                                      | 140,31   | 360,19   | 62,13   | 68,85   | 74,51  | 103,99   | 186,65   | 8,66  | 36,90 |

| Клас | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | АДМИНИСТРАТИВНИ |
|------|---------------------------|---------------------------|-----------------|
| A+   | <                         | 70                        |                 |
| A    | 70                        | 140                       |                 |
| B    | 141                       | 280                       |                 |
| C    | 281                       | 340                       |                 |
| D    | 341                       | 400                       |                 |
| E    | 401                       | 500                       |                 |
| F    | 501                       | 600                       |                 |
| G    | >                         | 600                       |                 |

| Class | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | OFFICE BUILDINGS |
|-------|---------------------------|---------------------------|------------------|
| A+    | <                         | 70                        |                  |
| A     | 70                        | 140                       |                  |
| B     | 141                       | 280                       |                  |
| C     | 281                       | 340                       |                  |
| D     | 341                       | 400                       |                  |
| E     | 401                       | 500                       |                  |
| F     | 501                       | 600                       |                  |
| G     | >                         | 600                       |                  |

Kindergarten  
Conditioned space volume 3 331 m<sup>3</sup>

| ENERGY SAVING PACKAGE | CONTENT — individual energy saving measures  |                       |         | Primary energy consumption (kWh/m <sup>2</sup> per year) | Primary energy saved (kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |         | Emissions saved CO <sub>2</sub> (kg/(m <sup>2</sup> per year)) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/m <sup>2</sup> per year) | Share of renewable energy (excl. appliances), % |
|-----------------------|--|-----------------------|---------|--|--|--|---------|---------|--|--|--|---|
|                       | Parameter  | Value                 |         |  |  | Class D  | Class E | Class F |  |  |  |   |
| Package 1             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.4     | 122,44   | 138,06   | 24,88  | 46,30   | 58,21   | 39,89  | 148,97   | 51,34  | 73,73   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                       | Heating — Installation of a biomass-fired boiler (heat plant fired by pellets)                         | η, %                  | 88      |  |  |  |         |         |  |  |  |   |
|                       | Domestic hot water (DHW) system — Installation of a biomass-fired boiler (heat plant fired by pellets) | η, %                  | 88      |  |  |  |         |         |  |  |  |   |
| Package 2             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.1     | 84,49  | 176,01   | 48,17  | 62,95   | 71,17   | 50,86  | 186,00   | 46,07  | 80,63   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                       | Installation of a biomass-fired boiler (heat plant using pellets)                                      | η, %                  | 88      |  |  |  |         |         |  |  |  |   |
|                       | Installation of an active hot water solar system   | η, %                  | 75      |  |  |  |         |         |  |  |  |   |
| Package 3             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.1     | 65,78  | 194,72   | 59,64  | 71,15   | 77,55   | 56,26  | 316,42   | 35,46  | 67,12   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                       | Installation of a direct-evaporation heat pump   | SCOP                  | 5       |  |  |  |         |         |  |  |  |   |
|                       | Installation of an active hot water solar system   | η, %                  | 75      |  |  |  |         |         |  |  |  |   |
| Package 4             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 0.9     | 60,71  | 199,79   | 62,75  | 73,37   | 79,28   | 57,73  | 323,10   | 31,01  | 66,41   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                       | Installation of a direct-evaporation heat pump   | SCOP                  | 5.5     |  |  |  |         |         |  |  |  |   |
|                       | Installation of an active hot water solar system   | η, %                  | 75      |  |  |  |         |         |  |  |  |   |
| Package 5             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 0.9     | 61,74  | 198,76   | 62,12  | 72,92   | 78,93   | 57,43  | 239,68   | 30,67  | 65,67   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                       | Installation of water-water heat pump  | SCOP                  | 5       |  |  |  |         |         |  |  |  |   |
|                       | Domestic hot water (DHW) system — Installation of a water-water heat pump                              | SCOP                  | 5.5     |  |  |  |         |         |  |  |  |   |
| Package 6             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.4     | 87,37  | 173,13   | 46,40  | 61,68   | 70,18   | 50,03  | 157,51   | 10,24  | 17,61   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                       | Heating — Installation of gas-fired boiler   | η, %                  | 103     |  |  |  |         |         |  |  |  |   |
|                       | Installation of an active hot water solar system   | η, %                  | 75      |  |  |  |         |         |  |  |  |   |
| Package 7             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.4     | 96,17  | 164,33   | 41,00  | 57,82   | 67,18   | 47,48  | 138,82   | 10,24  | 17,28   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                       | Central heating (substation)   | η, %                  | 100     |  |  |  |         |         |  |  |  |   |
|                       | Installation of an active hot water solar system   | η, %                  | 75      |  |  |  |         |         |  |  |  |   |
| Package 8             | Replacement of windows and doors   | U, W/m <sup>2</sup> K | 1.4     | 92,40  | 168,10   | 43,31  | 59,47   | 68,47   | 48,57  | 157,95   | 14,57  | 25,81   |
|                       | Thermal insulation of walls  | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                       | Thermal insulation of roof   | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                       | Central heating (substation)   | η, %                  | 100     |  |  |  |         |         |  |  |  |   |
|                       | Domestic hot water (DHW) system — Installation of a water-water heat pump                              | SCOP                  | 5.5     |  |  |  |         |         |  |  |  |   |
| SUMMARY RESULTS       |  |                       | minimum | 60,71  | 138,06   | 24,88  | 46,30   | 58,21   | 39,89  | 138,82   | 10,24  | 17,28   |
|                       |  |                       | maximum | 122,44   | 199,79   | 62,75  | 73,37   | 79,28   | 57,73  | 323,10   | 51,34  | 80,63   |
|                       |  |                       | average | 83,89  | 176,61   | 48,54  | 63,21   | 71,37   | 51,03  | 208,56   | 28,70  | 51,78   |

| Клас | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | ДЕТСКИ ГРАДИНИ |
|------|---------------------------|---------------------------|----------------|
| A+   | <                         | 33                        |                |
| A    | 33                        | 65                        |                |
| B    | 66                        | 130                       |                |
| C    | 131                       | 195                       |                |
| D    | 196                       | 260                       |                |
| E    | 261                       | 325                       |                |
| F    | 326                       | 390                       |                |
| G    | >                         | 390                       |                |

| Class | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | KINDERGARTHENS |
|-------|---------------------------|---------------------------|----------------|
| A+    | <                         | 33                        |                |
| A     | 33                        | 65                        |                |
| B     | 66                        | 130                       |                |
| C     | 131                       | 195                       |                |
| D     | 196                       | 260                       |                |
| E     | 261                       | 325                       |                |
| F     | 326                       | 390                       |                |
| G     | >                         | 390                       |                |

School building  
Conditioned space volume 3 510 m<sup>3</sup>

| ENERGY SAVING PACKAGE     | CONTENT — individual energy saving measures                       |                       |         | Primary energy consumption (kWh/m <sup>2</sup> per year) | Primary energy saved (kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |         | Emissions saved CO <sub>2</sub> (kg/m <sup>2</sup> per year) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/m <sup>2</sup> per year) | Share of renewable energy (excl. appliances), % |
|---------------------------|---|-----------------------|---------|--|--|--|---------|---------|--|--|--|---|
|                           |   | Parameter             | Value   |  |  | Class D  | Class E | Class F |  |  |  |   |
| Package 1                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.4     | 45,55  | 117,45   | 60,56  | 68,69   | 74,76   | 33,91  | 215,78   | 24,60  | 73,41   |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                           | Installation of a biomass-fired boiler (heat plant using pellets) | η, %                  | 88      |  |  |  |         |         |  |  |  |   |
|                           | Ventilation — Installation of a direct-evaporation heat pump      | SCOP                  | 4       |  |  |  |         |         |  |  |  |   |
| Heat recovery             | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 2                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.1     | 37,03  | 125,97   | 67,94  | 74,55   | 79,48   | 36,37  | 243,10   | 19,13  | 71,11   |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                           | Installation of a biomass-fired boiler (heat plant using pellets) | η, %                  | 88      |  |  |  |         |         |  |  |  |   |
|                           | Ventilation — Installation of a direct-evaporation heat pump      | SCOP                  | 4       |  |  |  |         |         |  |  |  |   |
| Heat recovery             | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 3                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.1     | 32,67  | 130,33   | 71,71  | 77,54   | 81,90   | 37,63  | 317,21   | 16,65  | 64,31   |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                           | Installation of a direct-evaporation heat pump                    | SCOP                  | 5       |  |  |  |         |         |  |  |  |   |
|                           | Ventilation — Installation of a direct-evaporation heat pump      | SCOP                  | 4       |  |  |  |         |         |  |  |  |   |
| Heat recovery             | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 4                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 0.9     | 31,43  | 131,57   | 72,78  | 78,40   | 82,59   | 37,99  | 325,43   | 15,62  | 63,89   |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                           | Installation of a direct-evaporation heat pump                    | SCOP                  | 5.5     |  |  |  |         |         |  |  |  |   |
|                           | Ventilation — Installation of a direct-evaporation heat pump      | SCOP                  | 4       |  |  |  |         |         |  |  |  |   |
| Heat recovery             | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 5                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 0.9     | 29,65  | 133,35   | 74,33  | 79,62   | 83,57   | 38,50  | 292,87   | 16,21  | 66,32   |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                           | Installation of a direct-evaporation heat pump                    | SCOP                  | 5       |  |  |  |         |         |  |  |  |   |
|                           | Ventilation — Installation of a direct-evaporation heat pump      | SCOP                  | 5       |  |  |  |         |         |  |  |  |   |
| Heat recovery             | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 6                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.4     | 54,49  | 108,51   | 52,82  | 62,55   | 69,81   | 31,33  | 180,95   | 0,00   | 0,00  |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                           | Heating + Ventilation — Installation of gas-fired boiler          | η, %                  | 103     |  |  |  |         |         |  |  |  |   |
|                           | Heat recovery   | η, %                  | 70      |  |  |  |         |         |  |  |  |   |
| Energy-efficient lighting | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 7                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.4     | 62,29  | 100,71   | 46,07  | 57,19   | 65,49   | 29,08  | 143,07   | 0,00   | 0,00  |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.25    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |  |  |         |         |  |  |  |   |
|                           | Heating + Ventilation — Central heating (substation)              | η, %                  | 100     |  |  |  |         |         |  |  |  |   |
|                           | Heat recovery   | η, %                  | 70      |  |  |  |         |         |  |  |  |   |
| Energy-efficient lighting | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| Package 8                 | Replacement of windows and doors                                  | U, W/m <sup>2</sup> K | 1.4     | 58,66  | 104,34   | 49,21  | 59,68   | 67,50   | 30,13  | 159,19   | 0,00   | 0,00  |
|                           | Thermal insulation of walls                                       | U, W/m <sup>2</sup> K | 0.22    |  |  |  |         |         |  |  |  |   |
|                           | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.15    |  |  |  |         |         |  |  |  |   |
|                           | Heating + Ventilation — Central heating (substation)              | η, %                  | 100     |  |  |  |         |         |  |  |  |   |
|                           | Heat recovery   | η, %                  | 70      |  |  |  |         |         |  |  |  |   |
| Energy-efficient lighting | η, %  | 70                    |         |  |  |  |         |         |  |  |  |   |
| SUMMARY RESULTS           |   |                       | minimum | 29,65  | 100,71   | 46,07  | 57,19   | 65,49   | 29,08  | 143,07   | 0,00   | 0,00  |
|                           |   |                       | Maximum | 62,29  | 133,35   | 74,33  | 79,62   | 83,57   | 38,50  | 325,43   | 24,60  | 73,41   |
|                           |   |                       | average | 43,97  | 139,03   | 61,93  | 69,78   | 75,64   | 34,37  | 234,70   | 11,53  | 42,38   |

| Клас | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | УЧИЛИЩА |
|------|---------------------------|---------------------------|---------|
| A+   | <                         | 25                        |         |
| A    | 25                        | 50                        |         |
| B    | 51                        | 100                       |         |
| C    | 101                       | 130                       |         |
| D    | 131                       | 160                       |         |
| E    | 161                       | 200                       |         |
| F    | 201                       | 240                       |         |
| G    | >                         | 240                       |         |

| Class | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | SCHOOL BUILDINGS |
|-------|---------------------------|---------------------------|------------------|
| A+    | <                         | 25                        |                  |
| A     | 25                        | 50                        |                  |
| B     | 51                        | 100                       |                  |
| C     | 101                       | 130                       |                  |
| D     | 131                       | 160                       |                  |
| E     | 161                       | 200                       |                  |
| F     | 201                       | 240                       |                  |
| G     | >                         | 240                       |                  |

Hospital building  
Conditioned space volume 2 546 m<sup>3</sup>

| ENERGY SAVING PACKAGE | CONTENT — individual energy saving measures   |                       |         | Primary energy consumption (kWh/m <sup>2</sup> per year) | Primary energy saved kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |         | Emissions saved CO <sub>2</sub> (kg/m <sup>2</sup> per year) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/m <sup>2</sup> per year) | Share of renewable energy (excl. appliances), % |         |        |        |       |       |       |        |        |       |       |
|-----------------------|---|-----------------------|---------|--|---|--|---------|---------|--|--|--|---|---------|--------|--------|-------|-------|-------|--------|--------|-------|-------|
|                       |   | Parameter             | Value   |  |   | Class D  | Class E | Class F |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 1             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.4     | 183,57   | 379,68  | 34,44  | 63,79   | 70,37   | 109,62   | 188,79   | 65,05  | 73,00   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.25    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a biomass-fired boiler (heat pump)  | η, %                  | 88      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 2             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.1     | 173,86   | 389,39  | 37,91  | 65,71   | 71,94   | 112,43   | 239,31   | 55,79  | 69,87   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a biomass-fired boiler (heat plant fired by pellets)                      | η, %                  | 88      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 3             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.1     | 137,66   | 425,59  | 50,84  | 72,85   | 77,78   | 122,88   | 248,47   | 52,09  | 76,61   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a direct-evaporation heat pump  | SCOP                  | 5       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 4             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.1     | 133,39   | 429,86  | 52,36  | 73,69   | 78,47   | 124,11   | 345,52   | 46,62  | 76,30   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.22    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a direct-evaporation heat pump  | SCOP                  | 5       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 5             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 0.9     | 136,98   | 426,27  | 51,08  | 72,98   | 77,89   | 123,07   | 332,33   | 52,01  | 76,84   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.25    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of a direct-evaporation heat pump  | SCOP                  | 5.5     |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 6             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.4     | 157,11   | 406,14  | 43,89  | 69,01   | 74,64   | 117,26   | 185,11   | 30,79  | 40,74   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.25    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a biomass-fired boiler (heat plant fired by pellets)                      | η, %                  | 88      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.4     |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 7             | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.25    | 224,25   | 339,00  | 19,91  | 55,77   | 63,80   | 97,87  | 197,67   | 73,00  | 75,21   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.28    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating — Installation of a biomass-fired boiler (heat plant fired by pellets)                      | η, %                  | 88      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Ventilation — Installation of a direct-evaporation heat pump  | SCOP                  | 4       |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Domestic hot water (DHW) system — Installation of a biomass-fired boiler (heat plant using pellets) | η, %                  | 88      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1.4     |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
| Package 8             | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0.22    | 189,02   | 374,23  | 32,49  | 62,72   | 69,49   | 108,05   | 198,03   | 30,79  | 37,75   |         |        |        |       |       |       |        |        |       |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0.15    |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heating + Ventilation — Central heating (substation)  | η, %                  | 100     |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Heat recovery   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Installation of an active solar system  | η, %                  | 75      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | Energy-efficient lighting   | η, %                  | 70      |  |   |  |         |         |  |  |  |   |         |        |        |       |       |       |        |        |       |       |
|                       | SUMMARY RESULTS   |                       |         |  |   |  |         |         |  |  |  |   | minimum | 133,39 | 339,00 | 19,91 | 55,77 | 63,80 | 97,87  | 185,11 | 30,79 | 37,75 |
|                       |   |                       |         |  |   |  |         |         |  |  |  |   | Maximum | 224,25 | 429,86 | 52,36 | 73,69 | 78,47 | 124,11 | 345,52 | 73,00 | 76,84 |
|                       |   |                       | average | 166,98   | 396,27  | 40,36  | 67,07   | 73,05   | 114,41   | 241,90   | 50,77  | 65,79   |         |        |        |       |       |       |        |        |       |       |

| Клас | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | СТРАЦИ ЗА ЗДРАВЕОПАЗВАНЕ |
|------|---------------------------|---------------------------|--------------------------|
| A+   | <                         | 70                        | A+                       |
| A    | 70                        | 140                       | A                        |
| B    | 141                       | 280                       | B                        |
| C    | 281                       | 365                       | C                        |
| D    | 366                       | 450                       | D                        |
| E    | 451                       | 563                       | E                        |
| F    | 564                       | 675                       | F                        |
| G    | >                         | 675                       | G                        |

| Class | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | HOSPITAL BUILDINGS |
|-------|---------------------------|---------------------------|--------------------|
| A+    | <                         | 70                        | A+                 |
| A     | 70                        | 140                       | A                  |
| B     | 141                       | 280                       | B                  |
| C     | 281                       | 365                       | C                  |
| D     | 366                       | 450                       | D                  |
| E     | 451                       | 563                       | E                  |
| F     | 564                       | 675                       | F                  |
| G     | >                         | 675                       | G                  |

Multi-family residential buildings  
Conditioned space volume 8 300 m<sup>3</sup>

| ENERGY SAVING PACKAGE | CONTENT — individual energy saving measures   |                       |       | Primary energy consumption (kWh/(m <sup>2</sup> per year)) | Primary energy saved (kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |         | Emissions saved CO <sub>2</sub> (tonne/m <sup>2</sup> per year) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/(m <sup>2</sup> per year)) | Share of renewable energy (excl. appliances), % |       |
|-----------------------|---|-----------------------|-------|--|--|--|---------|---------|---|--|--|---|-------|
|                       |   | Parameter             | Value |  |  | Class D  | Class E | Class F |   |  |  |   |       |
|                       |   |                       |       |  |  |  |         |         |   |  |  |   |       |
| Package 1             | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4   | 131,178  | 232,07   | 50,59  | 59,88   | 67,16   | 52,52   | 109,73   | 68,07  | 95,67   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,25  |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,28  |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                  | 88    |  |  |  |         |         |   |  |  |   |       |
|                       | Domestic hot water (DHW) system — Installation of a biomass-fired boiler (heat plant using pellets) | η, %                  | 88    |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
| Package 2             | Energy-efficient lighting   | η, %                  | 70    | 99,61  | 263,64   | 62,48  | 69,54   | 75,07   | 59,67   | 203,75   | 43,61  | 77,36   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of a direct-evaporation heat pump  | t of Performar        | 4     |  |  |  |         |         |   |  |  |   |       |
|                       | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | t of Performar        | 5     |  |  |  |         |         |   |  |  |   |       |
| Package 3             | Installation of an active hot water solar system  | η, %                  | 75    | 94,85  | 268,40   | 64,27  | 70,99   | 76,26   | 60,74   | 224,28   | 45,20  | 80,17   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of a direct-evaporation heat pump  | t of Performar        | 5     |  |  |  |         |         |   |  |  |   |       |
| Package 4             | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | t of Performar        | 5     | 89,41  | 273,84   | 66,33  | 72,66   | 77,62   | 61,98   | 234,73   | 40,19  | 81,11   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 0,9   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,15  |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15  |  |  |  |         |         |   |  |  |   |       |
| Package 5             | Installation of a direct-evaporation heat pump  | t of Performar        | 5,5   | 156,52   | 206,73   | 41,05  | 52,13   | 60,82   | 46,79   | 94,55  | 0,00   | 0,00  |       |
|                       | Domestic hot water (DHW) system — Installation of a central heating (substation)                    | t of Performar        | 5     |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,25  |  |  |  |         |         |   |  |  |   |       |
| Package 6             | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,25  | 121,24   | 242,01   | 54,33  | 62,92   | 69,65   | 54,77   | 137,50   | 10,61  | 17,77   |       |
|                       | Central heating (substation)  | η, %                  | 100   |  |  |  |         |         |   |  |  |   |       |
|                       | Domestic hot water (DHW) system — Central heating (substation)                                      | η, %                  | 100   |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
| Package 7             | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15  | 132,23   | 231,02   | 50,20  | 59,56   | 66,90   | 52,28   | 120,72   | 10,61  | 17,37   |       |
|                       | Central heating (substation)  | η, %                  | 100   |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
| Package 8             | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15  | 127,17   | 236,08   | 52,10  | 61,11   | 68,17   | 53,43   | 135,50   | 51,37  | 94,27   |       |
|                       | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                  | 88    |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,4   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
| Package 9             | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,15  | 126,68   | 236,57   | 52,29  | 61,26   | 68,29   | 53,54   | 135,55   | 10,61  | 16,42   |       |
|                       | Installation of gas-fired boiler  | η, %                  | 93    |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
| Package 10            | Thermal insulation of roof  | U, W/m <sup>2</sup> K | 0,22  | 95,81  | 267,44   | 63,91  | 70,70   | 76,02   | 60,53   | 157,66   | 45,14  | 76,02   |       |
|                       | Installation of a direct-evaporation heat pump  | t of Performar        | 5     |  |  |  |         |         |   |  |  |   |       |
|                       | Installation of an active hot water solar system  | η, %                  | 75    |  |  |  |         |         |   |  |  |   |       |
|                       | Energy-efficient lighting   | η, %                  | 70    |  |  |  |         |         |   |  |  |   |       |
|                       | Replacement of windows and doors  | U, W/m <sup>2</sup> K | 1,1   |  |  |  |         |         |   |  |  |   |       |
|                       | Thermal insulation of walls   | U, W/m <sup>2</sup> K | 0,22  |  |  |  |         |         |   |  |  |   |       |
| SUMMARY RESULTS       |   |                       |       | minimum  | 89,41  | 206,73   | 41,05   | 52,13   | 60,82   | 46,79  | 94,55  | 0,00  | 0,00  |
|                       |   |                       |       | maximum  | 156,52   | 273,84   | 66,33   | 72,66   | 77,62   | 61,98  | 234,73   | 68,07   | 95,67 |
|                       |   |                       |       | average  | 117,47   | 245,78   | 55,76   | 64,08   | 70,60   | 55,62  | 155,40   | 32,54   | 55,62 |

| Клас | EP <sub>min</sub> , kWh/m <sup>2</sup> | EP <sub>max</sub> , kWh/m <sup>2</sup> | ЖИЛИЩНИ СГРАДИ |
|------|--|--|----------------|
| A+   | <                                      | 48                                     |                |
| A    | 48                                     | 95                                     |                |
| B    | 96                                     | 190                                    |                |
| C    | 191                                    | 240                                    |                |
| D    | 241                                    | 290                                    |                |
| E    | 291                                    | 363                                    |                |
| F    | 364                                    | 435                                    |                |
| G    | >                                      | 435                                    |                |

Single-family residential buildings.  
Conditioned space volume 195 m<sup>3</sup>

| ENERGY SAVING PACKAGE                            | CONTENT — individual energy saving measures   |                                  |                       | Primary energy consumption (kWh/m <sup>2</sup> per year) | Primary energy saved (kWh/m <sup>2</sup> per year) | Relative share (%) of primary energy saved as a result of the application of the following energy consumption class package: |         |                       | Emissions saved CO <sub>2</sub> (kg/m <sup>2</sup> per year) | Necessary investment, BGN/m <sup>2</sup> (excl. VAT) | Energy from RS in final energy consumption following package application (kWh/m <sup>2</sup> per year) | Share of renewable energy (excl. appliances), % |       |
|--|---|----------------------------------|-----------------------|--|--|--|---------|-----------------------|--|--|--|---|-------|
|  | Parameter   | Value                            | Class D               |  |  | Class E  | Class F |                       |  |  |  |   |       |
|  |   |                                  |                       |  |  |  |         | U, W/m <sup>2</sup> K |  |  |  |   | η, %  |
| Package 1  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 1.4                   | 137,15   | 226,10   | 48,34  | 58,06   | 65,67                 | 51,17  | 182,60   | 77,48  | 91,17   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.25                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.28                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                             | 88                    |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Installation of a biomass-fired boiler (heat plant using pellets) | η, %                             | 88                    |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 2  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 1.1                   | 95,16  | 265,09   | 63,03  | 69,98   | 75,43                 | 59,99  | 287,75   | 48,92  | 72,91   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a direct-evaporation heat pump  | η of Performan                   | 4                     |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 3  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 1.1                   | 91,18  | 272,07   | 65,66  | 72,12   | 77,18                 | 61,57  | 308,46   | 51,25  | 76,38   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a direct-evaporation heat pump  | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 4  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 0.9                   | 83,57  | 279,68   | 68,52  | 74,44   | 79,08                 | 63,30  | 319,26   | 44,50  | 76,98   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a direct-evaporation heat pump  | η of Performan                   | 5,5                   |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 5  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 0.9                   | 83,57  | 279,68   | 68,52  | 74,44   | 79,08                 | 63,30  | 290,58   | 44,50  | 76,98   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a direct-evaporation heat pump  | η of Performan                   | 5,5                   |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Installation of a water-water heat pump                           | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 6  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 1.4                   | 156,47   | 206,78   | 41,06  | 52,15   | 60,83                 | 46,80  | 155,50   | 0,00   | 0,00  |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.25                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.25                  |  |  |  |         |                       |  |  |  |   |       |
|  | Central heating (substation)  | η, %                             | 100                   |  |  |  |         |                       |  |  |  |   |       |
|  | Domestic hot water (DHW) system — Central heating (substation)                                      | η, %                             | 100                   |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 7  | Replacement of windows and doors  | U, W/m <sup>2</sup> K            | 1.4                   | 121,44   | 241,81   | 54,26  | 62,86   | 69,60                 | 54,73  | 244,80   | 14,37  | 20,66   |       |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of gas-fired boiler  | η, %                             | 103                   |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
|  | Package 8   | Replacement of windows and doors | U, W/m <sup>2</sup> K |  |  |  |         |                       |  |  |  |   | 1.4   |
| Thermal insulation of walls                      |   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
| Thermal insulation of roof                       |   | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
| Central heating (substation)                     |   | η, %                             | 100                   |  |  |  |         |                       |  |  |  |   |       |
| Installation of an active hot water solar system |   | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
| Energy-efficient lighting                        |   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 9  |   | Replacement of windows and doors | U, W/m <sup>2</sup> K | 1.4  | 123,45   | 239,80   | 53,50   | 62,25                 | 69,10  | 54,27  | 223,22   | 68,41   | 89,89 |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of a biomass-fired boiler (heat plant using pellets)                                   | η, %                             | 88                    |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
|  | Package 10  | Replacement of windows and doors | U, W/m <sup>2</sup> K | 1.4  |  |  |         |                       |  |  |  |   |       |
| Thermal insulation of walls                      |   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
| Thermal insulation of roof                       |   | U, W/m <sup>2</sup> K            | 0.15                  |  |  |  |         |                       |  |  |  |   |       |
| Installation of gas-fired boiler                 |   | η, %                             | 93                    |  |  |  |         |                       |  |  |  |   |       |
| Installation of an active hot water solar system |   | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
| Energy-efficient lighting                        |   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
| Package 11                                       |   | Replacement of windows and doors | U, W/m <sup>2</sup> K | 1.1  | 90,88  | 272,37   | 65,77   | 72,21                 | 77,25  | 61,64  | 245,12   | 51,68   | 76,64 |
|  | Thermal insulation of walls   | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Thermal insulation of roof  | U, W/m <sup>2</sup> K            | 0.22                  |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of direct-evaporation heat pump  | η of Performan                   | 5                     |  |  |  |         |                       |  |  |  |   |       |
|  | Installation of an active hot water solar system  | η, %                             | 75                    |  |  |  |         |                       |  |  |  |   |       |
|  | Energy-efficient lighting   | η, %                             | 70                    |  |  |  |         |                       |  |  |  |   |       |
|  | SUMMARY RESULTS   |                                  |                       |  |  |  |         |                       |  |  |  |   |       |
|  |   |                                  |                       | Maximum  | 156,47   | 279,68   | 68,52   | 74,44                 | 79,08  | 63,30  | 319,26   | 77,48   | 91,17 |
|  |   |                                  |                       | average  | 114,31   | 248,94   | 56,94   | 65,04                 | 71,39  | 56,34  | 246,23   | 38,67   | 55,92 |

| Клас | EPmin, kWh/m <sup>2</sup> | EPmax, kWh/m <sup>2</sup> | ЖИЛИЩНИ СГРАДИ |
|------|---------------------------|---------------------------|----------------|
| A+   | <                         | 48                        |                |
| A    | 48                        | 95                        |                |
| B    | 96                        | 190                       |                |
| C    | 191                       | 240                       |                |
| D    | 241                       | 290                       |                |
| E    | 291                       | 363                       |                |
| F    | 364                       | 435                       |                |
| G    | >                         | 435                       |                |