

Appendix A: Mold Growth Index Data

The following plots show the mold growth index plots for Walls 1 through 4, both in Minneapolis and International Falls. All plots show the effect of pressures variation (± 3 Pa, 0 Pa), and cover two years of weather data (starting at July 1 as day 0).

The schematics below show the approximate physical location of the mold growth index plots. It is sampled at the interior face of the sheathing, slightly below the leakage “slot.”

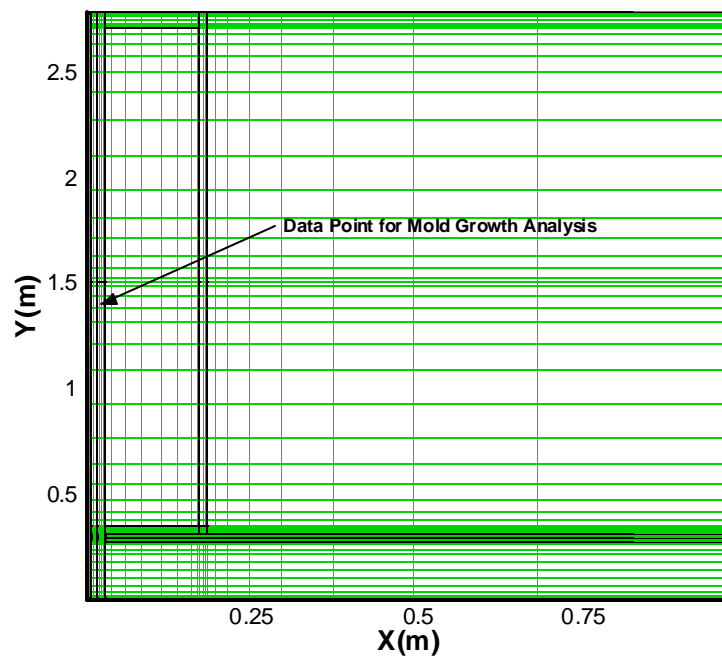
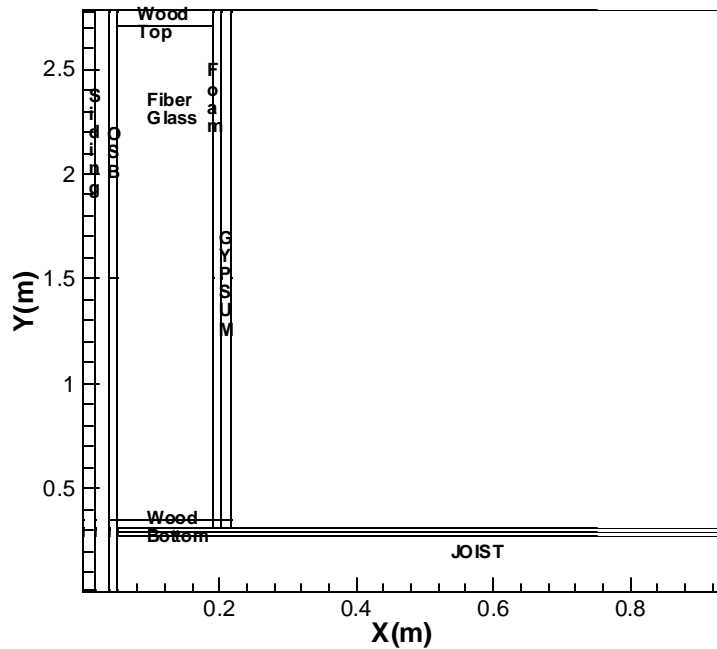


Figure A.1: Location of mold growth index plots in wall assembly

The vertical axis of these plots is the mold growth index; qualitative descriptions are shown below.

Table 2 (Repeated): Mold Index Values and Description

Index	Descriptive meaning
0	No growth
1	Some growth detected only with microscope
2	Moderate growth detected with microscope
3	Some growth detected visually
4	Visually detected coverage more than 10%
5	Visually detected coverage more than 50%
6	Visually detected coverage 100%

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Figure A.17: Mold Growth Index for Wall 4, high moisture rate, International Falls 10

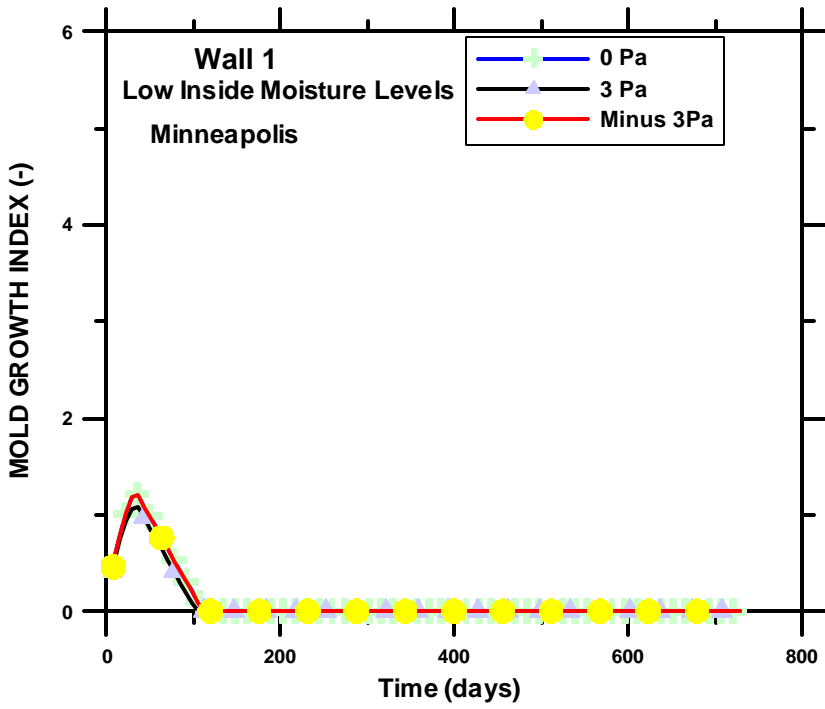


Figure A.2: Mold Growth Index for Wall 1, low moisture rate, Minneapolis

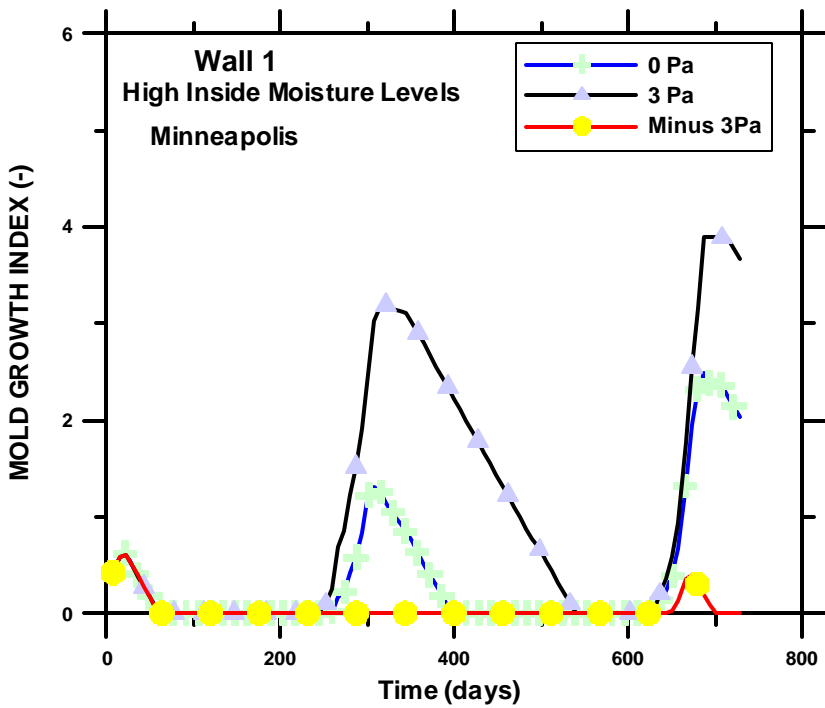


Figure A.3: Mold Growth Index for Wall 1, high moisture rate, Minneapolis

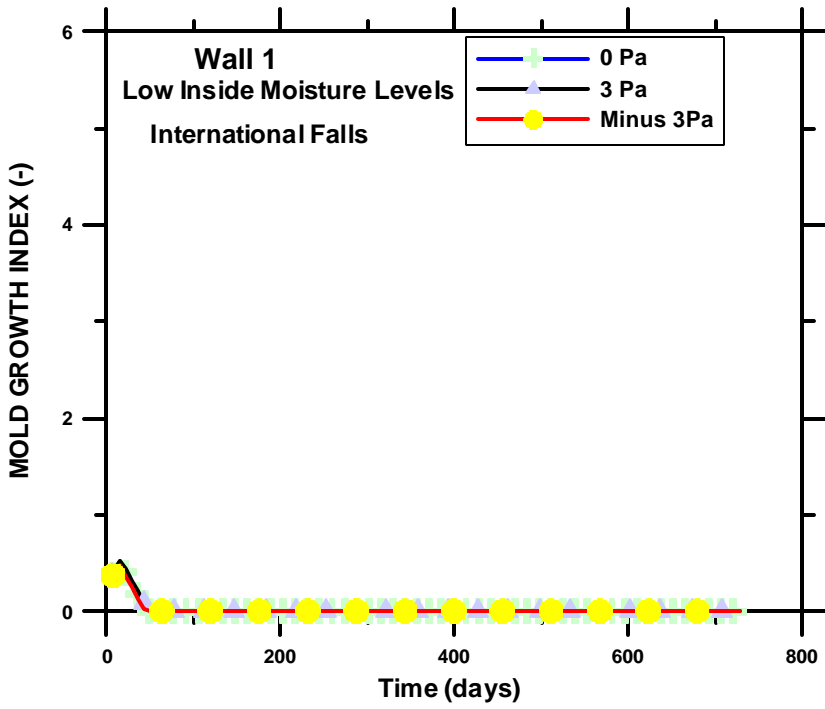


Figure A.4: Mold Growth Index for Wall 1, low moisture rate, International Falls

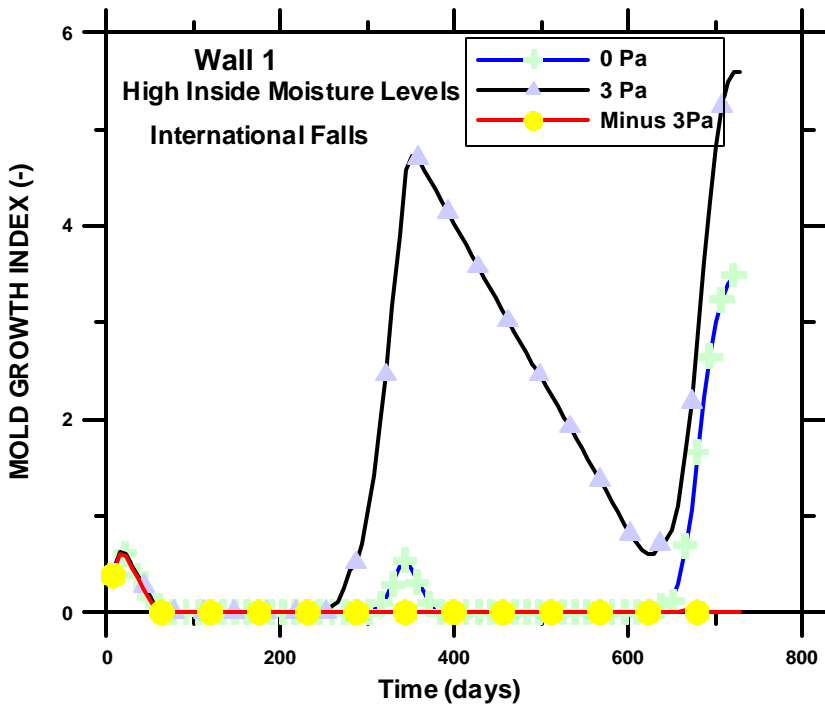


Figure A.5: Mold Growth Index for Wall 1, high moisture rate, International Falls

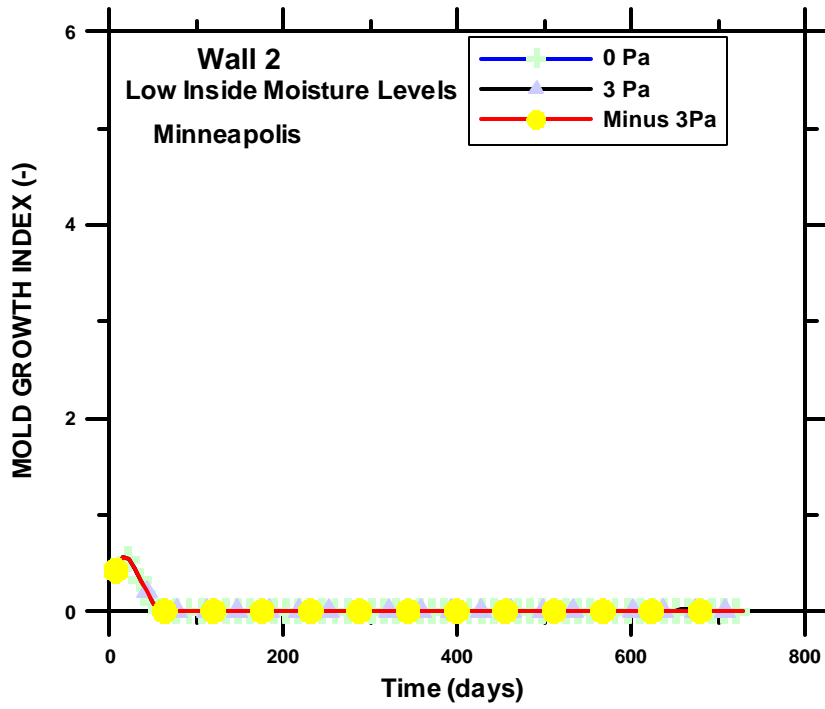


Figure A.6: Mold Growth Index for Wall 2, low moisture rate, Minneapolis

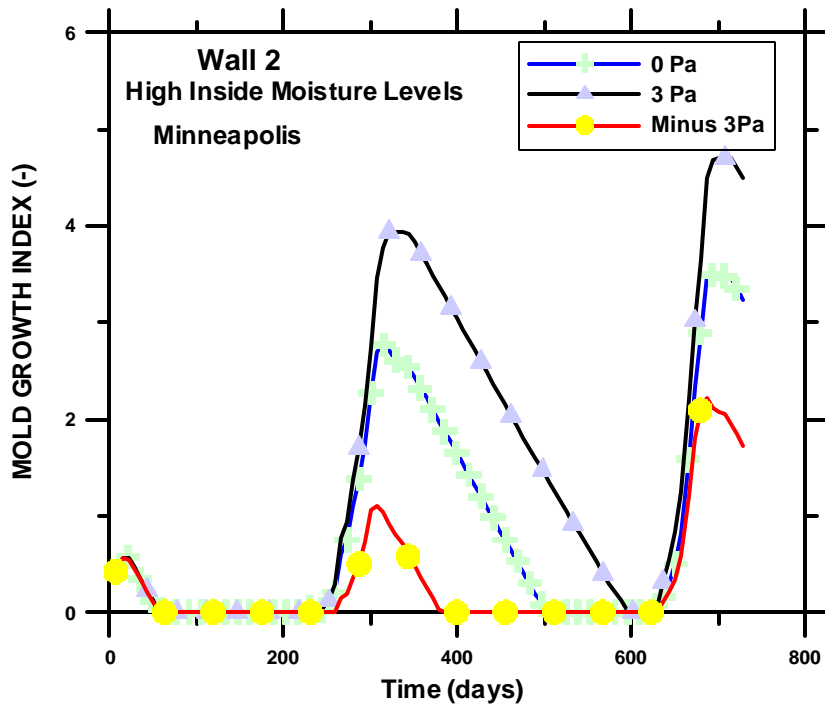


Figure A.7: Mold Growth Index for Wall 2, high moisture rate, Minneapolis

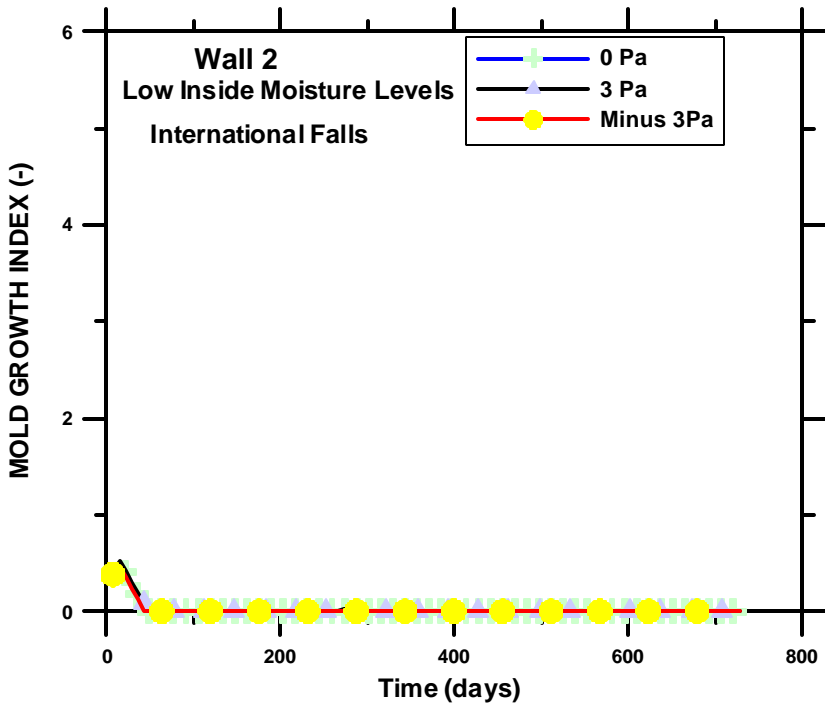


Figure A.8: Mold Growth Index for Wall 2, low moisture rate, International Falls

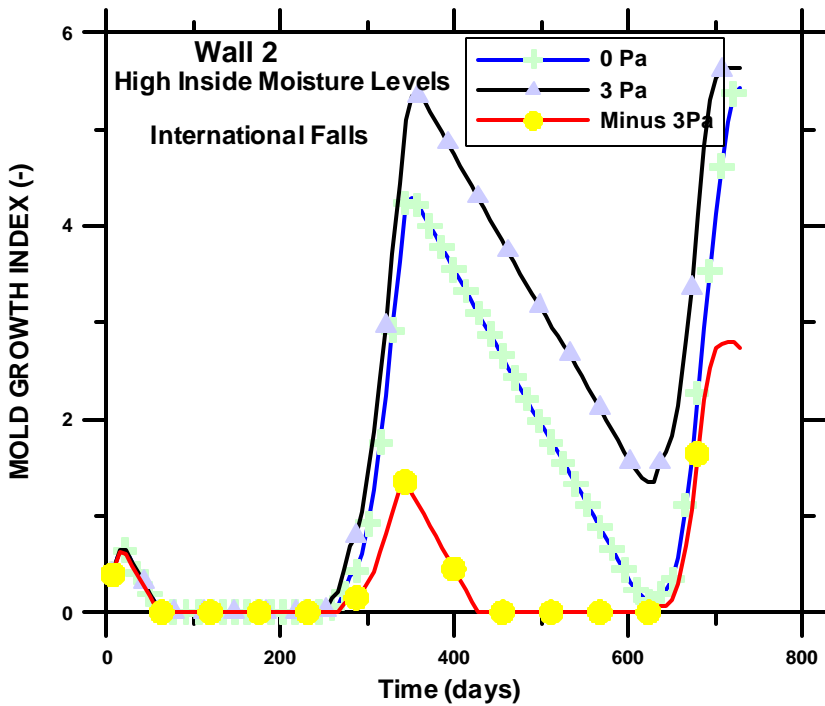


Figure A.9: Mold Growth Index for Wall 2, high moisture rate, International Falls

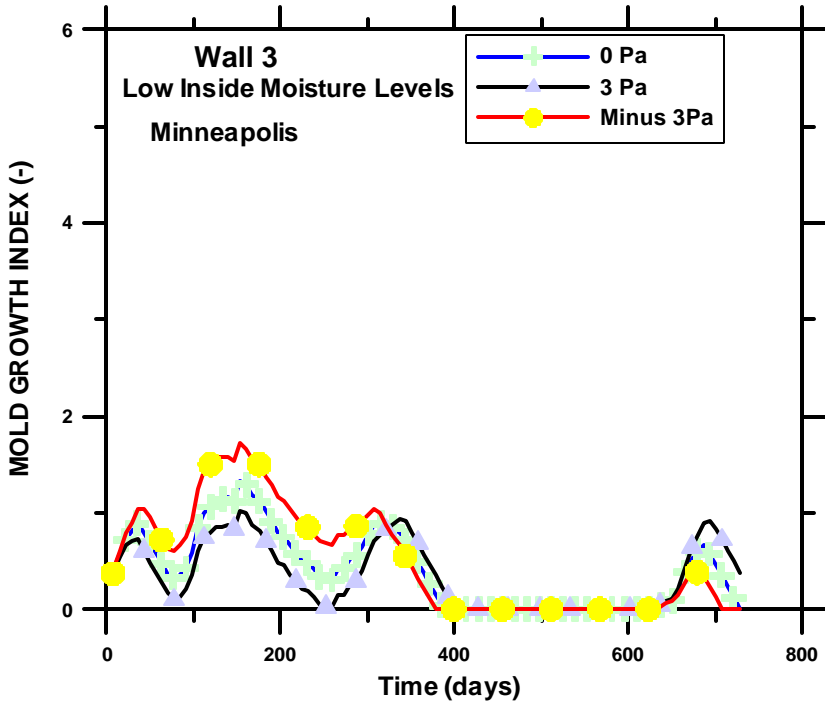


Figure A.10: Mold Growth Index for Wall 3, low moisture rate, Minneapolis

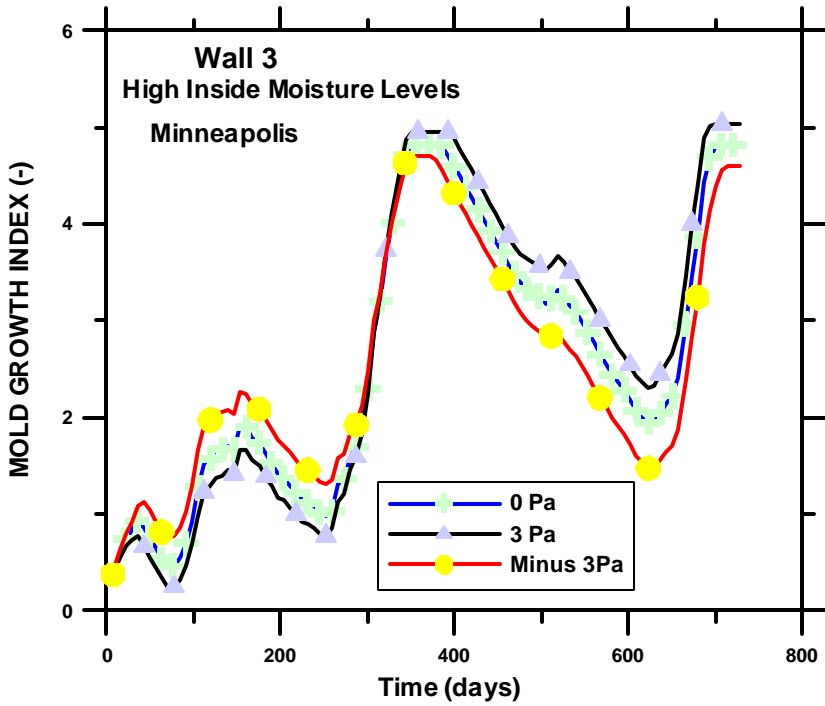


Figure A.11: Mold Growth Index for Wall 3, high moisture rate, Minneapolis

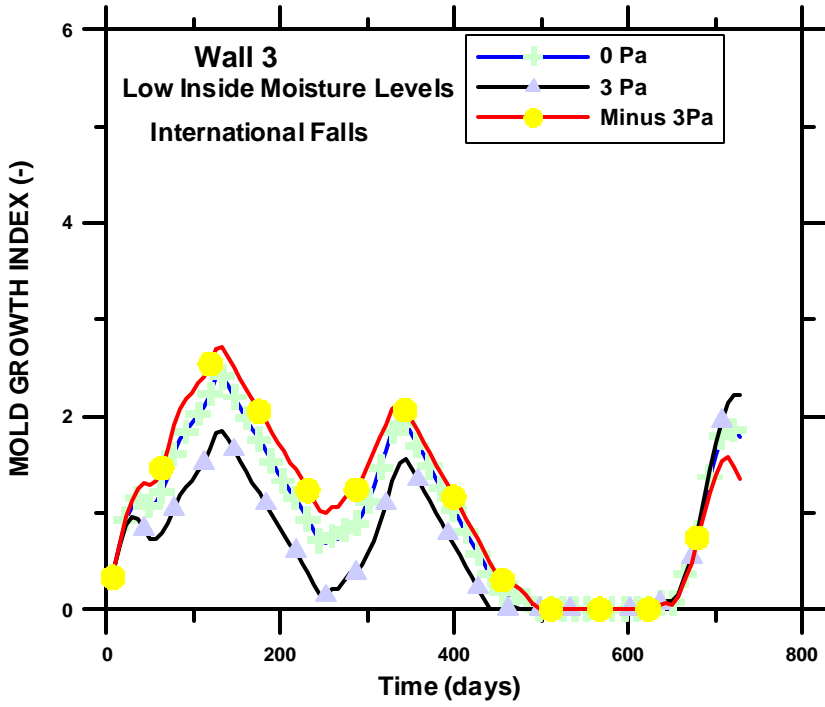


Figure A.12: Mold Growth Index for Wall 3, low moisture rate, International Falls

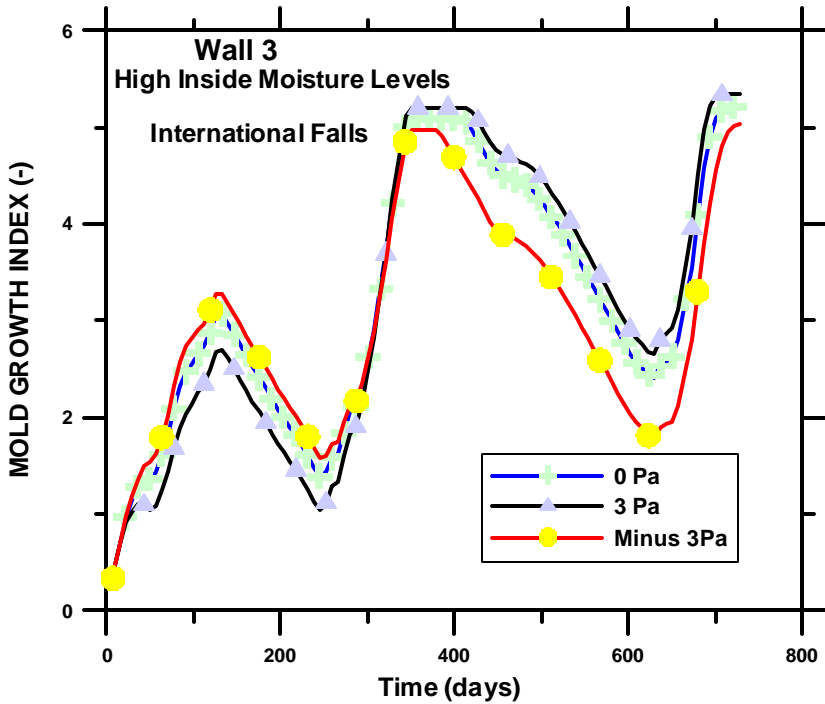


Figure A.13: Mold Growth Index for Wall 3, high moisture rate, International Falls

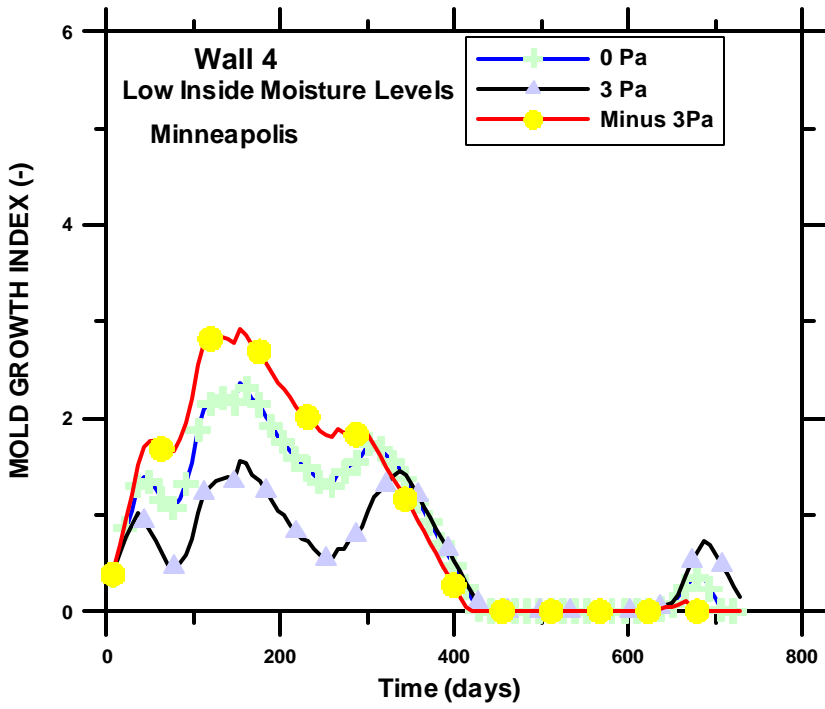


Figure A.14: Mold Growth Index for Wall 4, low moisture rate, Minneapolis

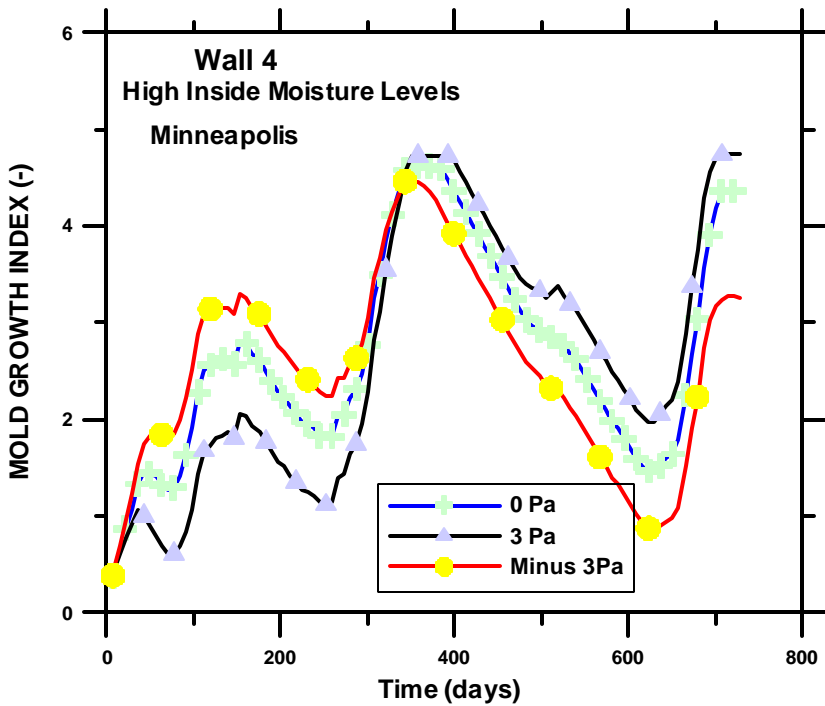


Figure A.15: Mold Growth Index for Wall 4, high moisture rate, Minneapolis

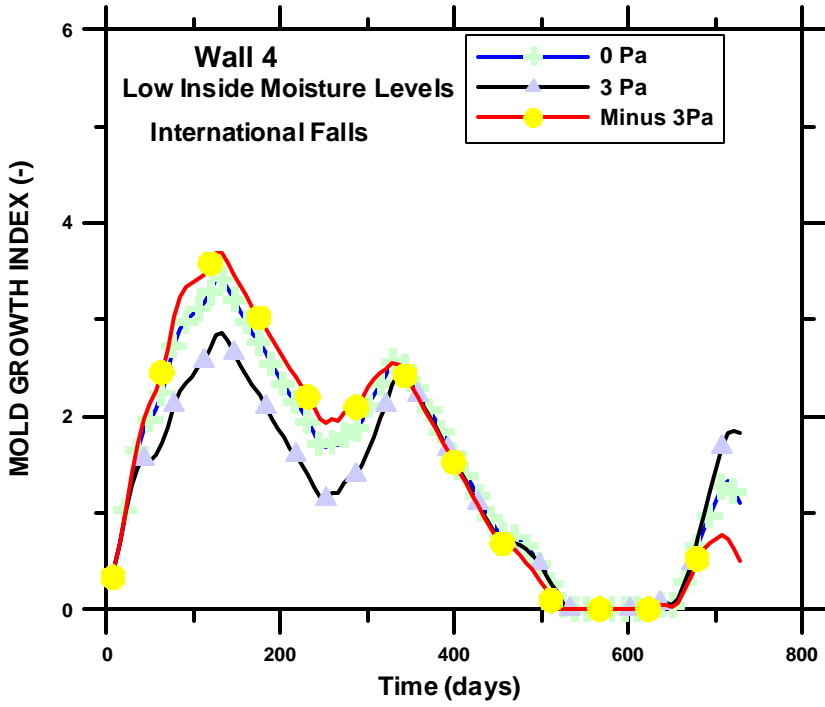


Figure A.16: Mold Growth Index for Wall 4, low moisture rate, International Falls

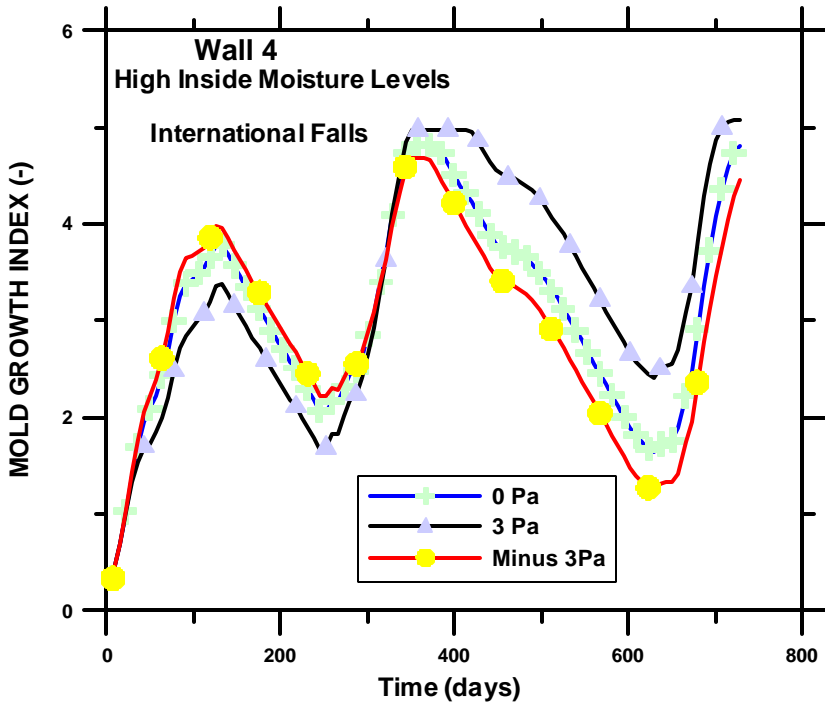


Figure A.17: Mold Growth Index for Wall 4, high moisture rate, International Falls

Appendix B: Hygrothermal Performance Comparisons

The following figures plot the moisture content in either sheathing or insulation, varying wall types and moisture generation rates. The International Falls weather location was used, and in all cases using pressurization, a pressure of +3 Pa (overpressurization) was used, acting 33% of the day.

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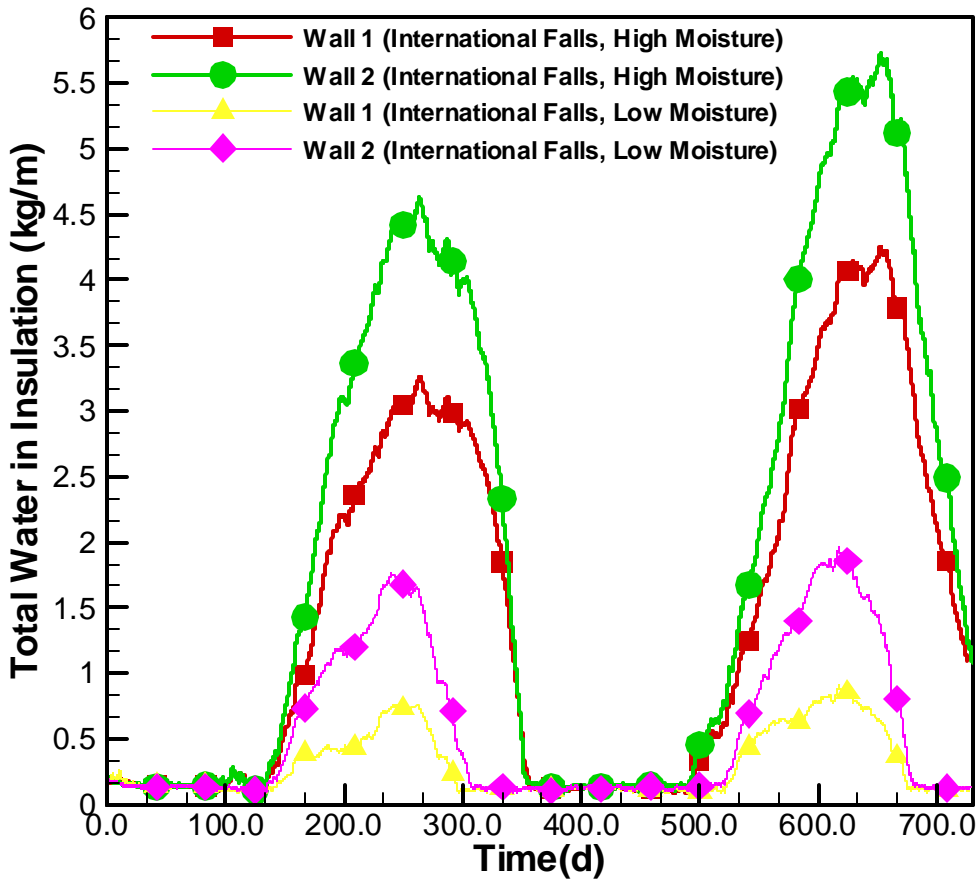


Figure B.1: Insulation layer hygrothermal performance as a function of interior moisture load and with (Wall 1) or without 6-mil poly (Wall 2).

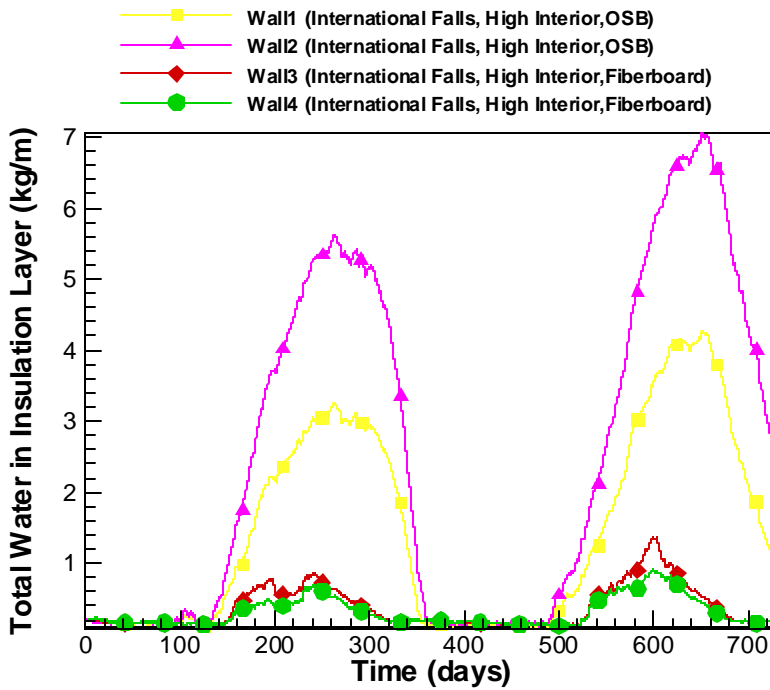


Figure B.2: Insulation layer hygrothermal performance as a function of exterior sheathing board, and interior vapor control strategy (Wall 2, Wall 3, Wall 4 have no 6-mil poly sheet).

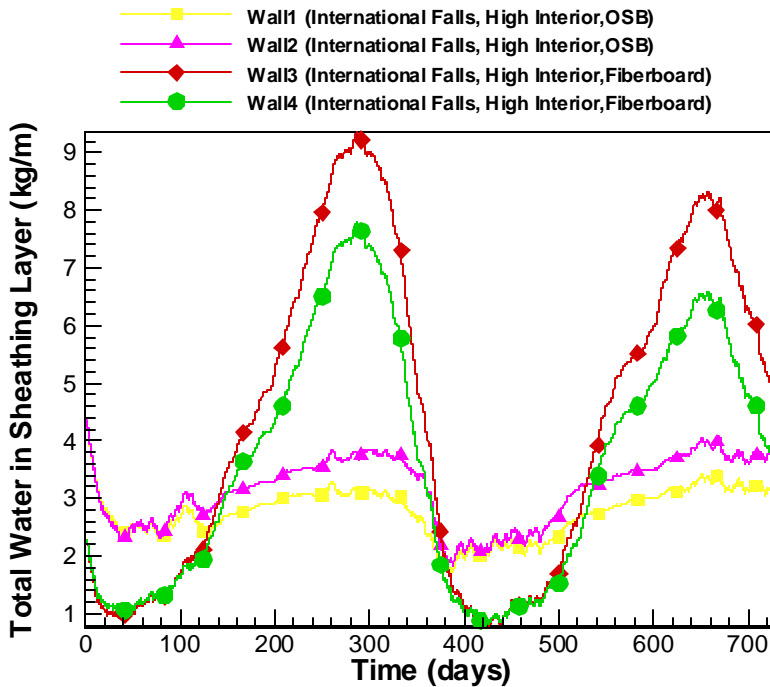


Figure B.3: Total water in sheathing board as a function of type of exterior sheathing board, and interior vapor control strategy (Wall 2, Wall 3, Wall 4 have no 6-mil poly sheet).

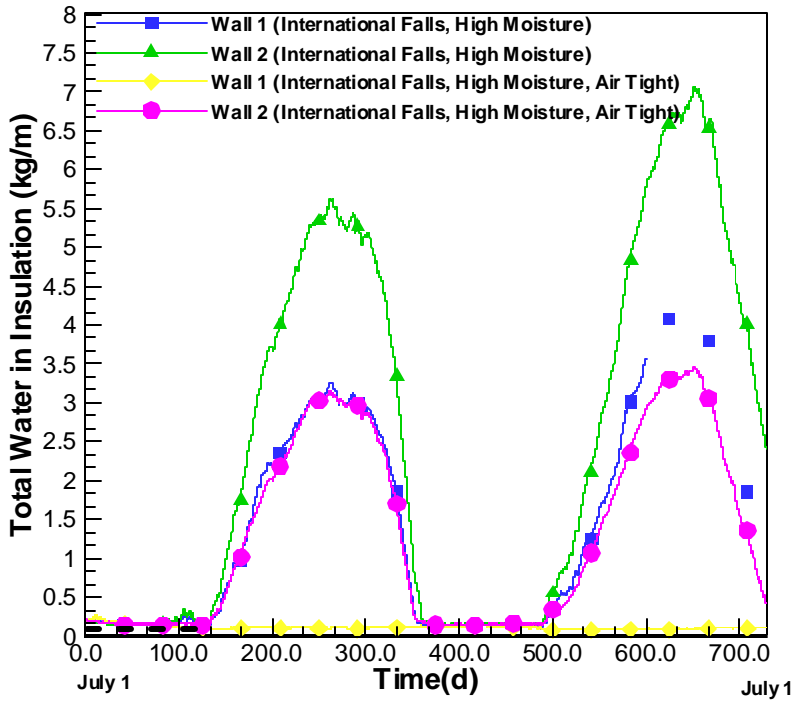


Figure B.4: Total water in insulation as a function of type of interior vapor control strategy (Wall 2 had no 6-mil poly sheet) and airtightness.

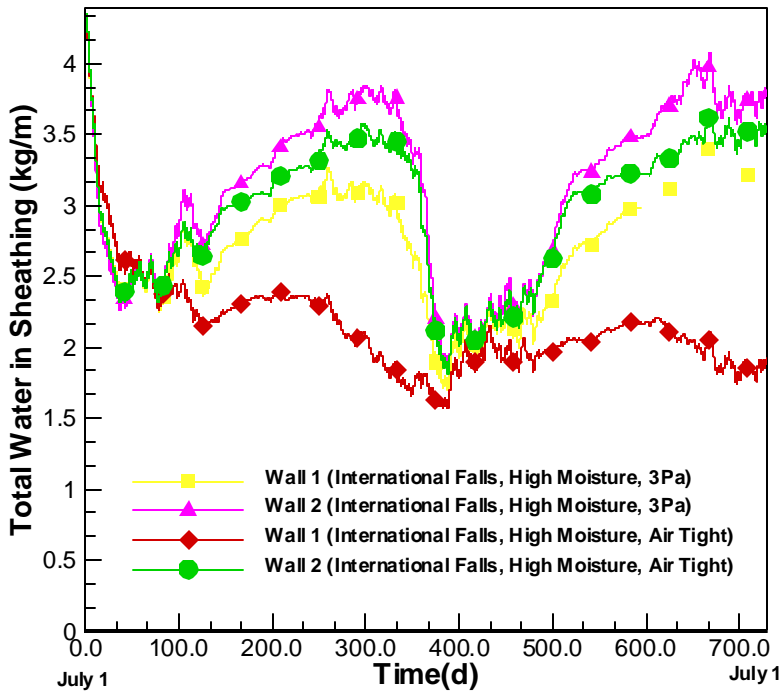


Figure B.5: Total water in sheathing board (OSB or Fiberboard) as a function of type of interior vapor control strategy (Wall 2 had no 6-mil poly sheet) and airtightness.