Enumeration of lozenge tilings of staircase regions

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There are many results enumerating lozenge tilings of hexagonal regions with either interior or boundary defects. We prove formulas that give the number of tilings of regions containing both a staircase and a triangular boundary defect using Kuo's graphical condensation method. Further, we determine the matching generating function for certain weighted analogs and use the weighted and unweighted results in conjunction to enumerate the lozenge tilings of symmetric hexagons with triangular boundary defects.