

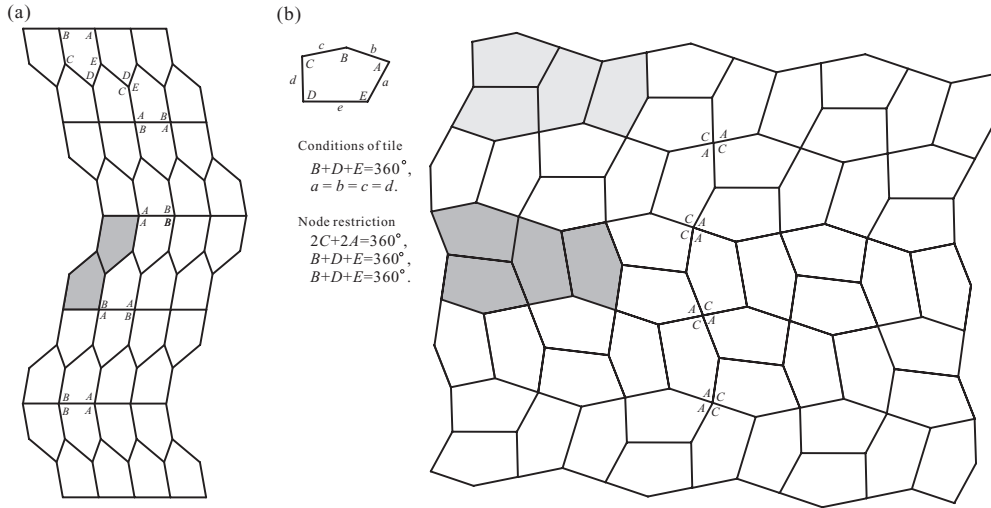


Fig. 3. Tilings of C20. (a) C20-T1C. (b) C20-T2.

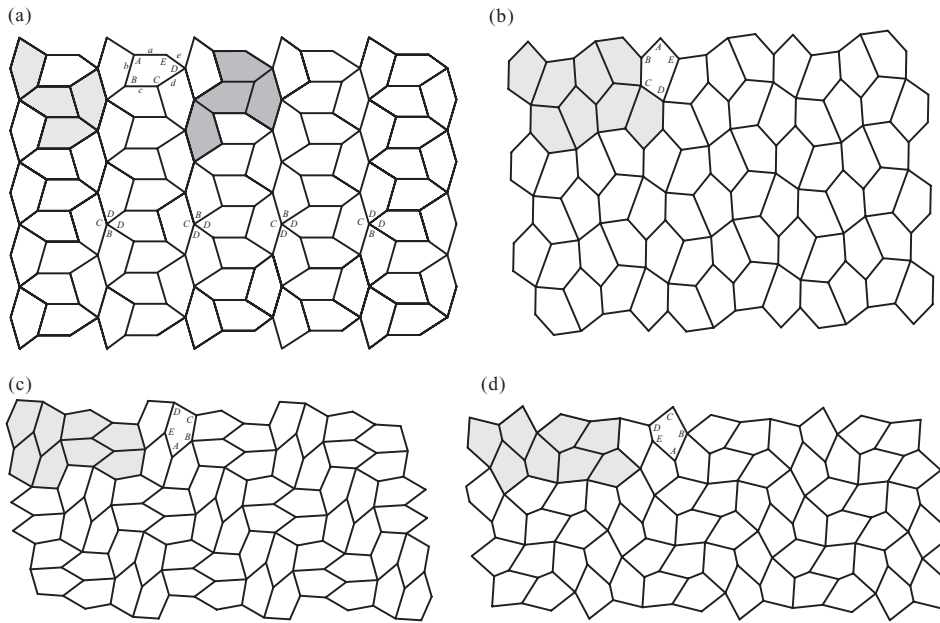


Fig. 4. Tilings of C12. (a) C12-T1C. (b) C12-T7. (c) C12-T8. (d) C12-T9.

Table 3's column concerning the internal angles of tiles and additional information on internal angles indicate the relationship among internal angles (A, B, C, D, E) using $\alpha, \beta, \gamma, \delta$, and θ (see Fig. 6 for positions) can be determined by dividing the inside of a pentagon, as in the geometrical discussion in Section 5 of Report I. The column of edge length ℓ and range in Table 3 shows the equation and the range expressing the length ℓ of e (edge DE), which alone has a different length assuming a convex pentagon with four equal-length edges with $a = b = c = d = 1$.

3.2 Discussion

Figure 2(a) is a tiling with C20-T1A tiles in DE -regular. As shown in this figure, in DE -regular, the C20-T1A tiles satisfying $a = d, b = c$ form the periodic tiling with the smallest fundamental region (the pale gray region). In addition they allow multipatterned tiling by freely combining a module of the smallest fundamental region and that of

the smallest fundamental region rotated by 180° (the dark gray region). If the C20-T1A tiles satisfy only the condition of edge $a = d$, four pentagons (one smallest fundamental region and one smallest fundamental region rotated by 180° in Fig. 2(a)) can form the smallest fundamental region and allow only periodical tiling. Note that the smallest fundamental region differs with the tiles which satisfy only $a = d$, and the tiles which satisfy $a = d, b = c$.

Figure 2(b) is tiling with C20-T1A tiles in the DE -reversed pattern. The following allow periodic tiling using the smallest fundamental region (the pale gray region) and multipatterned tiling by using reflective symmetry of the smallest fundamental region (the dark gray region) concurrently: the cases of C20-T1A satisfying $a = d, b = c$ in DE -reversed (Fig. 2(b)), C20-T1C (Fig. 3(a)), C20-T2 satisfying $a = b = c = d$ (Fig. 3(b)), and C12-T1C (Fig. 4(a)). C20-T1A tiles satisfying only the edge con-