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Ellingham and Stephens have shown in several cases that the genus of  $\overline{K_m} + K_n$  is the same as the genus of  $K_{m,n}$ , namely  $\lceil (m-2)(n-2)/4 \rceil$ . One of the methods utilized to obtain these minimum genus embeddings involves embeddings of  $K_n$  with all hamilton cycle faces. They use a doubling construction to get an infinite family of such embeddings when  $n \equiv 2 \pmod{4}$ . In this paper we develop a tripling construction that provides embeddings of  $K_n$  with all hamilton cycle faces when  $n \equiv 3 \pmod{4}$ . This leads to an infinite family of graphs for which  $g(\overline{K_m} + K_n) = g(K_{m,n})$ , the first known results for  $n \equiv 3 \pmod{4}$  and all  $m \geq n - 1$ . To make this tripling construction work, some embeddings of  $K_{n,n,n}$  with certain properties are given. (Received September 14, 2010)