Extended Fibonacci Sequence

You are given a sequence of Fibonacci numbers, defined as $F_0 = 0$, $F_1 = 1$, and $F_n = F_{n-1} + F_{n-2}$ for all $n>1$.

Define the nth term of a sequence S as $S_n = S_{n-1} \mathbin{\|} F_n$, where '$\|$' is the concatenation operator. *And take $S_0 = 0$*

Your task:

Given n, Let f(n) = $\sum_{i=1}^{n} S_i$.

Let $S_0 = 0$

Bounds:
1≤n≤1000

Sample Input:
n =30

Sample Output:
64233954228 (last 11 digits of f(30))