

Concept Question 10-12: What is the Smith-Barnwell condition for?

If the wavelet scaling function $g[n]$ satisfies the Smith-Barnwell condition given by Eq. (10.108), and the wavelet function $h[n]$ forms a QMF pair with $g[n]$, as defined by Eq. (10.109), then the single-stage shown in Fig. 10-23 implements perfect reconstruction, meaning that the output equals the input.