$$0 = \langle \varphi_u, \varphi_u \rangle = 2\xi_u \eta_u \langle \tilde{\varphi}_\xi, \tilde{\psi}_\eta \rangle \quad \text{and} \quad 0 = \langle \psi_v, \psi_v \rangle = 2\xi_v \eta_v \langle \tilde{\varphi}_\xi, \tilde{\psi}_\eta \rangle.$$