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James Gillespie* (jgillesp@ramapo.edu), Ramapo College, 505 Ramapo Valley Road, School of Theoretical and Applied Science, Mahwah, NJ 07430. *Completeness of the Gorenstein projective and injective cotorsion pairs.*

This is a report on a portion of joint work with Daniel Bravo and Mark Hovey on model structures for the stable derived category of a ring R . We see that every module over a Noetherian ring R has a special Gorenstein injective preenvelope. That is, the Gorenstein injectives form the right half of a complete cotorsion pair. On the other hand, we get the dual result concerning Gorenstein projective modules whenever R is coherent and satisfies that all flat modules have finite projective dimension. As we will point out, this is an extremely large class of rings. Moreover, there is a generalization as follows: Let R be any coherent ring. Then every R -module has both a special “Ding injective” preenvelope and a “Ding projective” precover. For the types of rings above, Ding injective = Gorenstein injective and Ding projective = Gorenstein projective. (Received September 25, 2012)