1035-05-918 **Tariq A Alraqad*** (alraq1ta@cmich.edu), Mathematics Department, Central Michigan University, Mt. Pleasant, MI 48859. *New families of non-embeddable quasi-derived designs.*

A derived design of a symmetric (v, k, λ)–design D is a 2–$(k, \lambda, \lambda - 1)$ design D' obtained from D by removing a block B and replacing every other block A by $A \cap B$. A 2-design that has parameters of a derived design (equivalently $k = \lambda + 1$) is called a quasi-derived design. Moreover, it is said to be embeddable if it is the derived design of a symmetric design.

Theorem: Let v and k be positive integers and let D_0 be a quasi–derived 2-$(v, k, k - 1)$ design. Then the following are equivalent:

1. There exists a 2–$((k - 1)v + 1, k, k - 1)$ design D that contains D_0 as a subdesign.

2. There exists a $(k - 1)$–resolvable 2–$((k - 2)v + 1, k - 1, k - 1)$ design R.

Furthermore, if $v \not\equiv 1 \pmod{k - 1}$, then D is non-embeddable.

As applications, several new families of non-embeddable quasi-derived designs are constructed. (To appear in Journal of Combinatorial Designs). (Received September 17, 2007)