Compatibility of Common Building Metals

	Copper	Aluminum	Stainless Steel	Galvanized Steel	Zinc Alloy	Lead
Aluminum	1	—	—	—	—	—
Stainless Steel	1	3	—	—	—	—
Galvanized Steel	2	3	2	—	—	—
Zinc	1	3	1	3	—	—
Lead	2	2	2	3	3	—
Brass	2	1	1	2	1	2
Bronze	2	1	1	2	1	2
Monel	2	3	1	2	1	2
Iron/steel	1	2	2	2	1	3

1. Galvanic action will occur.
2. Galvanic action may occur under certain conditions or over a period of time.
3. Galvanic action is insignificant under normal conditions.

Figure 7-7 Compatibility of metals.

- In single-wythe walls, two-wire ladder or truss-type reinforcement is most appropriate. Under most circumstances, the ladder type provides adequate restraint against shrinkage cracking. The truss type is stronger and provides about 35% more area of steel, but the ladder type generally interferes less with grout flow and vertical bar placement in structurally reinforced walls.
- For multi-wythe walls in which the backing and facing wythes are of the same type of masonry, three-wire joint reinforcement of either the truss or ladder-type design is suitable. If the wythes are laid up at different times, however, the three-wire design makes installation awkward. Three-wire truss-type reinforcing should never be used when insulation is installed in the cavity between wythes because it is too stiff to allow for differential thermal movement between the backing and facing wythes.
- For walls in which the backing and facing wythes are laid at different times, or walls which combine clay and concrete masonry in the facing and backing wythes, joint reinforcement with adjustable ties allows differential movement between wythes and facilitates the installation of the outer wythe after the backing wythe is already in place. The adjustable ties may be either a tab or hook-and-eye design. Joint reinforcement with adjustable ties should not be used with concrete masonry facing wythes over concrete masonry backing wythes. The concrete masonry facing requires shrinkage restraint which is not provided by the intermittent ties. For concrete masonry facings over concrete masonry backing, three-wire joint reinforcement is more appropriate.
- For uninsulated cavity walls of block and brick where the backing and facing wythes are laid at the same time, truss- or ladder-type reinforcement with fixed welded-wire tab ties can be used. It is less expensive than reinforcement with adjustable ties, but also allows less differential movement. If the cavity is insulated, the tabs restrain differential thermal movement between the backing and facing wythes. Tab-type reinforcement also does not provide shrinkage restraint for concrete masonry facing wythes.
- For projects in seismically active areas, joint reinforcement with seismic anchors is available from several manufacturers.

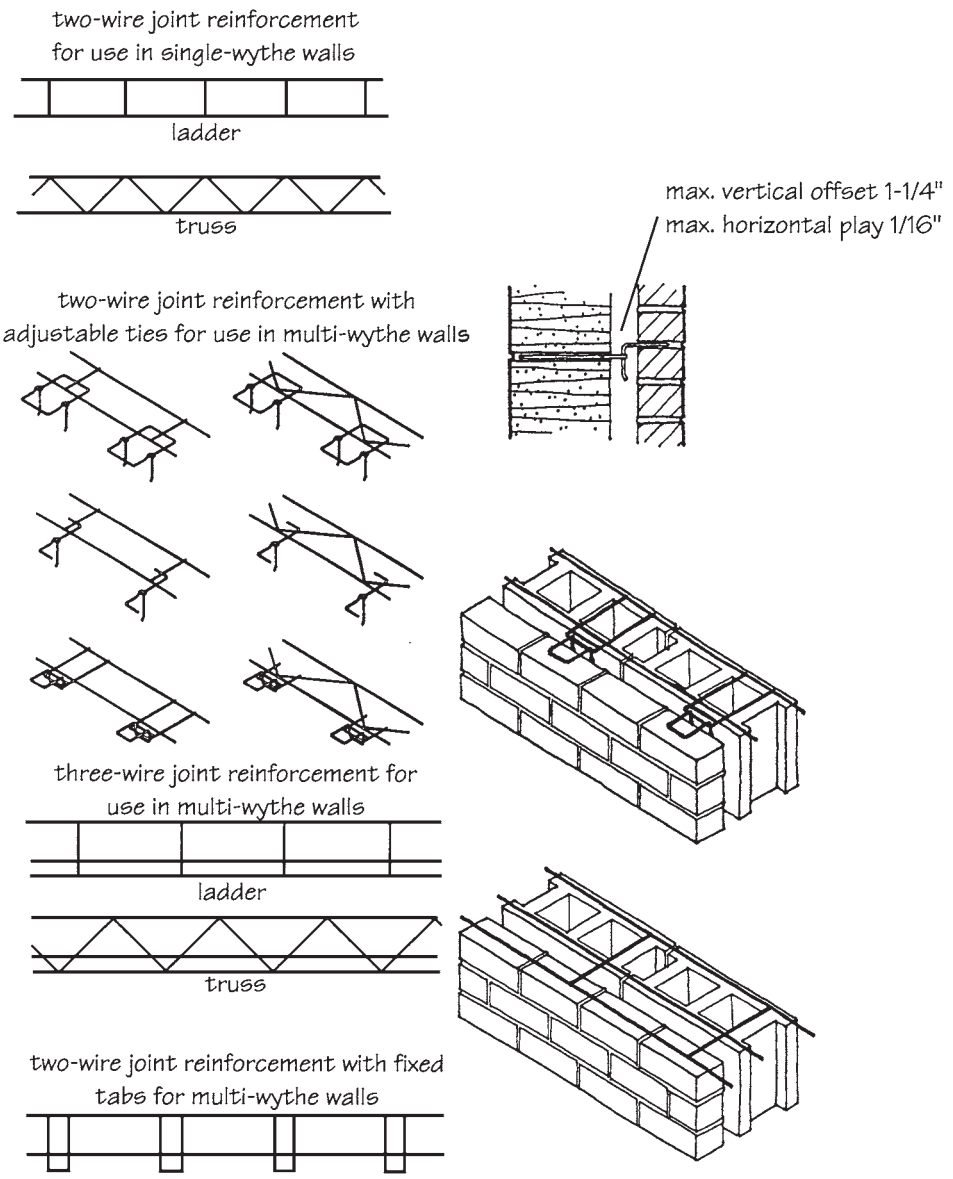

Figure 7-8 Prefabricated joint reinforcement.

The table in *Fig. 7-9* summarizes the general recommendations for using various types of joint reinforcement in various applications.

Horizontal joint reinforcement is usually made of galvanized steel wire. Spacing of the welded lateral ties should not exceed 16 in. for deformed wire or 6 in. for smooth wire. If used as structural reinforcing, the longitudinal chords *must* be of deformed wire. Joint reinforcement should conform to the requirements of ASTM A951, *Standard Specification for Joint Reinforcement for Masonry*. For exterior walls and for interior walls exposed to a relative humidity of 75% or higher, joint reinforcement should be hot-dip galvanized after fabrication in accordance with ASTM A153, Class B2. For interior walls exposed to lower humidity, joint reinforcement can be zinc coated in accordance with ASTM A641. Stainless steel joint reinforcement will provide the