

APPLICATION OF COMPOSITES IN HELICOPTER DESIGN AT SIKORSKY AIRCRAFT

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ABSTRACT

The history of advanced composites usage at Sikorsky will be discussed, starting with small components in the 1970s up to the present where the structure of the RAH-66 Comanche helicopter is constructed almost entirely of composites. One of the initial composite components developed in the 1970's was a reinforcing Boron strap for the tail of the UH-54 Skycrane. In the 1980's the UH-60 Blackhawk and the S-76 production aircraft employed a graphite/epoxy tail rotor flexbeam. In addition a composite rear fuselage was developed for the UH-60 Blackhawk, and an all composite research helicopter was built under Army contract to develop composites technology (the S-75 ACAP). Also, graphite/epoxy composite fuel sponsons were put into production for the MH-53E Super Stallion. In the 1990's the RAH-66 Comanche attack helicopter was developed, utilizing a graphite/epoxy-honeycomb primary structure. The S-92 Helibus commercial helicopter uses graphite/epoxy fuel sponsons, tail rotor flexbeams, and numerous fairings.