

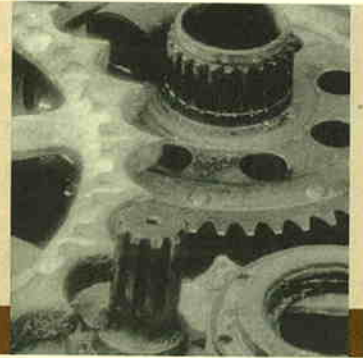
# The Consultant

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## Tools of the Trade: Travel



SEAL's Beechcraft Bonanza A36.

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System Engineering And Laboratories Corporation is an independent testing laboratory, forensic engineering and investigative consulting firm.

This topic series will deal with the various resources SEAL Corporation utilizes in the performance of its various project assignments. Each series will concentrate on a major resource that SEAL Corporation maintains in its inventory. The first topic in this series is that of SEAL Corporation's aviation capabilities.

Currently, SEAL Corporation has two instrument-qualified pilots on staff. Additionally, we have two contract pilots available, as required. We maintain, own, and operate a Beechcraft Bonanza, which is a six-place high performance, long duration aircraft. With extended range tip tanks, this aircraft can remain airborne for approximately eight continuous hours. It has the ability to carry up to six individuals or four individuals plus equipment. This aircraft can operate at international airports or on

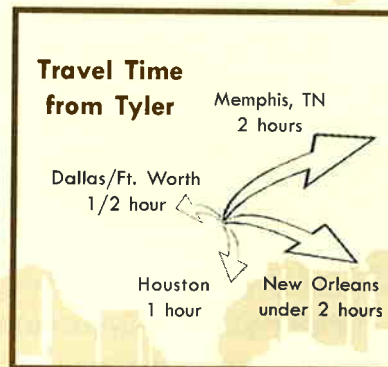
unimproved short runways. The Beechcraft A36 operates at a speed of almost 200 mph.

SEAL Corporation has operated and owned aircraft since 1986. We have years of experience in fast, efficient deployment of people and equipment to all parts of the United States. Recently we completed our own air travel to the following locations: San Francisco, California; White Sands Missile Range, NM; South Texas; Albuquerque, NM; Enid, Oklahoma and Alabama. Over the years, we have performed our own air travel to all portions of the United States, including Chicago, Delaware, and Miami.

Prior to September 11, 2001 (9/11), our operations were competitive with commercial air travel. Since 9/11, our comparison cost is clearly less than commercial and faster, considering the long waiting periods associated with airport security. The Beechcraft Bonanza A36 is considered the top of the line

aircraft in its category in terms of performance, comfort, and speed. We are able to travel to many locations at a cost savings of hundreds of dollars and in some cases even greater cost savings due to the reduced time en-route. We are able to deploy individuals and

equipment many times more efficiently and cost effectively than any of our competitors who have not developed capabilities in aviation.



**Product Safety** (Cont. from Page 2)  
'too slippery' where the hazard does not actually require the existence of a form of energy.

Not performing a hazards analysis of their product could be considered negligence on the part of the manufacturer.

Second, mitigating, or eliminating the hazard, should be undertaken. The Hierarchy for hazard control describes the "rule of thumb" for means of eliminating or reducing hazards that are found unacceptable. The hierarchy is listed in general order of effectiveness. Once an unacceptable hazard has been identified, it must be mitigated, there are various methods of eliminating or reducing the hazard. These methods exist in a hierarchy of effectiveness and are listed on the previous page. Although there are variations to this hierarchy, the list shown is generally the accepted version by the Safety Profession.

Third, the product should be monitored as it is being used by consumers, to determine whether there are any latent defects, uses or misuses consistent with an unacceptable hazard. The manufacturer must follow the Consumer Product Safety Act and comply

with those reporting and corrective procedures. The manufacturer should have a registration and warranty system to receive and record problems, which are reported with their product by consumers. The manufacturer should keep informed of the current experiences consumers are having with their product. In order to properly record and monitor, identification of their product is needed.

Part number, serial number, and a database which records the configuration of these is needed to properly identify which version of the product is problematic.

The final major step taken by a manufacturer is to monitor progress and state-

of-the-art designs and processes, for the type of equipment produced. If a new state-of-the-art process, procedure, or material becomes available that would enhance the safety of their product, the manufacturer must retool in order to stay abreast of current technology in the manufacturing of their product. Wherever advances in materials, design or factors of safety have been accomplished, those advances should be instituted in the product.

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*"...the manufacturer must retool to stay abreast of current technology..."*

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[www.sealcorp.com](http://www.sealcorp.com)



## In-house Continuing Education

State Board of Insurance approved CE courses provided to claims managers or legal staff.

Please call 1.800.624.0905 to reserve a course(s).

Accident Recon • Fire Investigation • Product Safety • Structural

# Product Safety Analysis

There are roughly four broad steps that should be taken by a manufacturer of products, to ensure their product is safe once it reaches the production stage and is available to the consumer.



Example of a warning sign.

First, a hazard analysis should be performed to determine what hazards exist or can be produced by the product, for the use or potential misuse of their product. There is an exhaustive list of techniques utilized to evaluate hazards such as: Failure Modes and Effects Analysis, preliminary hazards analysis, hazardous operability study (HAZOP), barrier analysis, energy analysis, etc. The manufacturer should have on staff, or available by consultation, a safety professional who has experience in the evaluation of hazards in order to properly conduct a hazard analysis of their product.

Hazards fall into two very basic categories. 1) Energy - and these are broad categories of energy like Potential Energy, Kinetic Energy, electrical, thermal and others. 2) Environment - there are some situations where there is not an unexpected release of energy, but in fact the product creates a hazardous environment or can be hazardous in a particular environment. Environment can be such as 'too hot', 'too sharp', or

*(Continued on next page)*

## HIERARCHY FOR HAZARD CONTROL

### I.

First, eliminate the hazard through a **fundamental design change**, or substitution.

### II.

Install an **engineered safety feature**, like a safety relief valve.

### III.

Provide a **safety barrier** to separate people from the hazard.

### IV.

Install **warning devices** (bells, horns) when the hazard is present. Post Caution/Warning/Danger signs.

### V.

After safety devices and warnings, **policies and procedures** should be administered to protect people from the hazard.

### VI.

If the hazard cannot be eliminated, guarded against, or properly warned, **personal protective equipment** must be used.