

# Network Protection for Design Professionals

## Authentication and Encryption

### Background:

**Authentication** — identification and authentication are fundamental to network access control. Identification is the means by which a user provides a claimed identity to the system. Authentication is the means of establishing the validity of this claim. Typically this information takes the form of user ID and password.

**Encryption** — encryption is the conversion of data into a form, which cannot be easily understood by unauthorized individuals. To provide secure transmission of data over a public network Internet encryption is necessary to assure the data is not understandable except by the authorized recipient.

Remote users systems often present the weakest link in otherwise secure networks. Not only is data vulnerable during transport over public networks through eavesdropping by unauthorized individuals, but the systems of others such as vendors or contractors, and employee home computers may be less secure than the organization, which they are accessing.

### How to implement appropriate controls:

- All remote access should require user identification and authentication utilizing strong passwords.
- Encryption should be used to provide secure communication between the remote users and your networks. A Virtual Private Network (VPN) is the most common method to provide this protection. When properly implemented, e-mail and other traffic will be encrypted, minimizing the risk to privacy.
- As part of your security policy, allow access only from other networks that meet your organization's security requirements. Use of a VPN does not eliminate the need for normal precautions for offsite computers or networks.

### Resources:

**Security for Telecommuting and Broadband Communications**, National Institute of Standards and Technology,  
<http://csrc.nist.gov/publications/nistpubs/800-46/sp800-46.pdf>

**An Introduction to Computer Security**: The NIST Handbook,  
<http://csrc.nist.gov/publications/nistpubs/800-12/handbook.pdf>

