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**Comsat Antenna** The antenna shown is the new, multiple-beam, Unattended Earth Terminal, located at COMSAT Laboratories in Clarksburg, Maryland. Seemingly simple, it is actually a complex structure capable of maintaining contact with several satellites simultaneously (conventional Earth station antennas communicate with only one satellite at a time). In developing the antenna, COMSAT Laboratories used NASTRAN, NASA's structural analysis computer program, together with BANDIT, a companion program. The computer programs were used to model several structural configurations and determine the most suitable. The speed and accuracy of the computerized design analysis afforded appreciable savings in time and money.

#24 Le 2



**Picture Wall** Photo shows a subway station in Toronto, Ontario, which is entirely glass-enclosed. The all-glass structure was made possible by a unique glazing concept developed by PPG Industries, Pittsburgh, Pennsylvania, one of the largest U.S. manufacturers of flat glass. In the TVS glazing system, transparent glass "fins" replace conventional vertical support members used to provide support for wind load resistance. For stiffening, silicone sealant bonds the fins to adjacent glass panels. At its glass research center near Pittsburgh, PPG Industries uses the NASTRAN computer program to analyze the stability of enclosures made entirely of glass. The company also uses NASTRAN to simulate stresses on large containers of molten glass and to analyze stress effects of solar heating on flat glass.