APPENDIX B

Launch Complex 39

1. Vehicle (Vertical) Assembly Building (VAB)

Area: 32,500 sq m (8 acres).
Dimensions: 218 x 158 m, 160 m tall. Compare to Statue of Liberty, 93 m tall.
Volume: 3,665,000 cu m. Compare to Pentagon, 2,181,000 cu m.
Features: 4 high bays for assembly and checkout of launch vehicles with spacecraft, low bays for checkout of individual stages. 4 high bay doors, opening height 139 m. 71 lifting devices. 2 bridge cranes of 227-metric-ton capacity. 9,070 metric tons of air conditioning, 125 ventilators.
Construction: 89,400 metric tons of steel, 49,700 cu m of concrete. 4,225 open-end steel pipe piles, 0.4 m diameter, driven to depth of 49 m. Siding of 100,800 sq m of insulated aluminum panels and 6,500 sq m of plastic panels.
Cost of construction: $117,000,000.

2. Launch Control Center (LCC)

The 4-story, electronic brain of LC-39, the LCC was built adjacent to the VAB and 5.6 km from pad A. During launch, 62 TV cameras provided closed-circuit pictures to 100 monitor screens in the LCC. The LCC was connected to the mobile launchers by a high-speed data link.
1st floor: offices, cafeteria, shops.
2nd floor: telemetry, RF and tracking equipment, instrumentation, data reduction and evaluation equipment.
3rd floor: 4 firing rooms, one for each of the high bays in the VAB. Each active room had 470 sets of control and monitoring equipment.
4th floor: conference and display rooms, offices, mechanical equipment.
Cost of construction: $10,000,000.

3. Mobile Launchers (3)

Weight: 5,715 metric tons, with unfueled vehicle.
Height (on pedestals): 136 m to top of crane.
Launch platform: 2-story steel structure 49 x 41 m, 7.6 m high. Exhaust hole 14 m square. 4 hold-down arms, each 18100 kg, held rocket vertical during thrust buildup, approximately 8.9 seconds to reach 95% of total thrust. Platform supported by 6 steel pedestals 7 meters high when in VAB or on pad. 4 additional extensible columns used at pad, to stiffen platform during firing.

Umbilical tower, mounted on platform, 18 levels, 2 elevators. 9 swing (service) arms for personnel access, propellant, electrical, pneumatic, and instrumentation lines. Arms weighed 15900–23600 kg, length 13.7–18.3 m. Top arm (9) used by astronauts to enter spacecraft. 4 arms retracted before liftoff, 5 at T – 0.

Cost of construction: $33,963,000.

4. **Transporters (2)**

Used to move mobile launcher, with assembled space vehicle, from VAB to pad, also to move mobile service structure to and from pad.

Weight: 2720 metric tons, largest tracked vehicle known.

Dimensions: 35 x 40 m, with top deck about size of baseball infield; height, 6–8 m.

4 double-tracked crawlers each 3 m high, 12 m long. 8 tracks per transporter, 57 shoes per track. Each tread shoe (or link in the track) weighed 0.9 metric ton.

Power: 16 traction motors powered by four 1000-kw generators, driven by 2 diesel engines; two 750-kw generators, driven by 2 diesel engines for jacking, steering, lighting, ventilating; two 150-kw generators for power to the mobile launcher.

Maximum speed: 1.6 km/hr loaded, 3.2 unloaded. Pad-to-VAB trip time, loaded, 7 hrs.

Levelling: top of space vehicle kept vertical within ±10' of arc, including negotiation of 5% grade leading up to pad.

Cost of construction: $13,600,000.

5. **Mobile Service Structure (1)**

Weight: 4760 metric tons.

Height: 125 m.

Elevators: 2 for personnel and equipment in tower, 1 from ground to base work area.

Work platforms: 2 self-propelled, 3 fixed. Top 3 platforms served spacecraft, bottom 2 served Saturn V.

Parking position during launch: 2100 m from pad A.

Cost of construction: $11,600,000.

6. **Crawlerway**

Length: VAB
Width: 2 lanes
Depth: average
Cost of construction:

7. **Launch Pads**

Construction:

Flame trench:

Lighting: 40
Emergency form to blast supplies for level to reve
6. **Crawlerway**

   Length: VAB to pad A, 5500 m; VAB to pad B, 6800 m.
   Width: 2 lanes, each 12 m, separated by 15 m median.
   Depth: average 2 m.
   Cost of construction: $7,500,000.

7. **Launch Pads (2)**

   Construction: 52,000 cu m of concrete, roughly octagonal in shape. 2 pads are virtually identical, 2660 m apart.
   Flame trench: 13 m deep, 18 m wide, 137 m long.
   Flame deflector: 635 metric tons, 12 m high, 15 m wide, 23 m long.
   Lighting: 40 xenon high-intensity searchlights in 5 clusters around perimeter.
   Emergency Egress System: 61-m escape tube from mobile launcher platform to blast-resistant room 12 m below pad, which contained survival supplies for 20 persons for 24 hours. Also, cab on slidewire from 98-m level to revetment 763 m away.