

FTTH Network Design Report

1. Splitting Levels and Ratios

Two-stage splitting:

- Primary (Stage 1): 1:8 splitters in building distribution cabinet (ground floor)
- Secondary (Stage 2): 1:8 splitters in floor distribution boxes (each floor)

Overall ratio: $1:8 \times 1:8 = 1:64$.

2. Distribution Box Capacity and Locations

Stage 1:

- Wall-mounted cabinet (19" 6U) with 4 × 1:8 splitter modules per building
- Location: Ground floor in telecom room for each building

Stage 2:

- Floor distribution box (12 ports) with 1 × 1:8 splitter module per floor
- Location: Each floor's equipment closet.

3. Number of Splitter Modules

- Stage 1: 4 per building × 2 buildings = 8 modules (1:8)
- Stage 2: 30 per building × 2 buildings = 60 modules (1:8)

4. Fiber Counts per Segment

Feeder (OLT → Building): 1 × 6-core cable per building (4 cores used for splitters, 2 spare)

Vertical (Building → Floors): 1 × 48-core cable per building (30 cores used, 18 spare)

Drop (Floor → Apartments): 1 × 8-core drop cable per floor (6 cores used, 2 spare)