

Added index to room_type and room_size and a cover index to (building_LID, room_num)

room_type being indexed helped specifically when searching rooms by type and size:

Query:

```
EXPLAIN ANALYZE  
SELECT r*, l*  
FROM rooms r  
JOIN location l ON r.LID = l.LID  
WHERE r.room_type = 'study room';
```

Before:

```
-> Nested loop inner join (cost=31.6 rows=27.2) (actual time=0.304..0.371 rows=16 loops=1)  
  -> Filter: (r.room_type = 'study room') (cost=22.1 rows=27.2) (actual time=0.284..0.303 rows=16 loops=1)  
    -> Table scan on r (cost=22.1 rows=218) (actual time=0.0861..0.245 rows=220 loops=1)  
-> Single-row index lookup on l using PRIMARY (LID=r.LID) (cost=0.254 rows=1) (actual time=0.00379..0.00382 rows=1 loops=16)
```

After:

```
-> Nested loop inner join (cost=7.95 rows=16) (actual time=0.099..0.143 rows=16 loops=1)  
  -> Index lookup on r using idx_rooms_type (room_type='study room'), with index condition: (r.room_type = 'study room') (cost=2.35  
rows=16) (actual time=0.0847..0.0922 rows=16 loops=1)  
  -> Single-row index lookup on l using PRIMARY (LID=r.LID) (cost=0.256 rows=1) (actual time=0.00279..0.00283 rows=1 loops=16)
```

- Execution time decreased from 0.304..0.371 to 0.099..0.143 in the nested join as well as a decreased estimated cost
- Scanned rows went from 220 to 16 total
- Actual results went from (actual time=0.0861..0.245 rows=220 loops=1) to (actual time=0.0847..0.0922 rows=16 loops=1)

Searching by room_size:

Query:

```
EXPLAIN ANALYZE  
SELECT r.*, l.*  
FROM rooms r  
JOIN location l ON r.LID = l.LID  
WHERE r.room_size = 'large';
```

Before:

```
-> Nested loop inner join (cost=47.5 rows=72.7) (actual time=0.353..0.363 rows=2 loops=1)  
  -> Filter: (r.room_size = 'large') (cost=22.1 rows=72.7) (actual time=0.317..0.322 rows=2 loops=1)  
    -> Table scan on r (cost=22.1 rows=218) (actual time=0.0926..0.271 rows=220 loops=1)  
  -> Single-row index lookup on l using PRIMARY (LID=r.LID) (cost=0.251 rows=1) (actual time=0.0185..0.0186 rows=1 loops=2)
```

After:

```
-> Nested loop inner join (cost=1.4 rows=2) (actual time=0.0678..0.0728 rows=2 loops=1)  
  -> Index lookup on r using idx_rooms_size (room_size='large'), with index condition: (r.room_size = 'large') (cost=0.7 rows=2) (actual  
    time=0.0458..0.0481 rows=2 loops=1)  
  -> Single-row index lookup on l using PRIMARY (LID=r.LID) (cost=0.3 rows=1) (actual time=0.00625..0.0063 rows=1 loops=2)
```

- Execution time decreased from 0.353..0.363 to 0.0678..0.0728 in the nested join as well as a decreased estimated cost
- Scanned rows went from 220 to 2 total
- Actual results went from (actual time=0.0926..0.271 rows=220 loops=1) to (actual time=0.0458..0.0481 rows=2 loops=1)