Approximate Design of a Simplified Steel Frame Members

Figure A: PLAN

Secondary beams (Simply Supported)
Approximate Design of a Simplified Steel Frame Members

Figure B: Frame Along ② OR ⑤

Figure C: Frame Along ① OR ⑥
ENGI 7704: Design of Steel Structure

Approximate Design of a Simplified Steel Frame Members

Design Data:

Preliminary Sections for

- Columns and Main beams: W 360X57
- Secondary Beams: W 250X28
- Bracing: HS 152X102X8

Intermediate Floor Load:

- Live Load: 3kPa
- Dead Load: 4.5kPa

Top Floor Load:

- Live Load: 1.2kPa
- Dead Load: 1.2kPa

Point Loads on the Truss Joints: at the top of building

- Live Load: 2kN
- Dead Load: 1kN

Wind Load: 1kPa (from left to right in the elevation drawing; one direction only)

□ All main beams are rigidly connected in X-direction and pin connected in Y-direction

□ All secondary beams are simply supported

□ All dimensions are in meters

□ A total of Four interior columns along ③ and ④ stop below the top floor

Dimension A is equal to 5, 6 or 7m and is related to the last digit of your student #. If the last digit is not 5, 6 or 7 then go to the second last digit and so on. If your student # does not consist of any 5/6/7 then use A=6m. Example: if your student no is 201088510, then choose A=5m.

If you have questions, please see the TA:
Mr. Kshama Roy (ksr037@mun.ca)