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(Pierre Dubas, III a 2)

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## III a 6

### Discussion - Discussion - Diskussion

#### Two Problems Relating to the Design of Framed Tier Buildings (Pierre Dubas, III a 2)<sup>1)</sup>

*Deux problèmes relatifs à l'étude des portiques étagés multiples  
(Pierre Dubas, III a 2)<sup>1)</sup>*

*Zwei theoretische Untersuchungen an mehrstieligen Stockwerkrahmen  
(Pierre Dubas, III a 2)<sup>1)</sup>*

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The author has reminded us of the effect of change of length due to axial forces on the moments in the members of a steel framed tier building; in this case the lower 6 storeys of a future 26 storey structure.

While wind moments are one cause of differential axial strain in columns, variation in superimposed load is another and generally affects internal columns more than external. For steel frames with conventional external walls it seems unlikely the full axial strains occur in columns due to wind; the walls take some, even most, of the compression. With curtain walling however, this is not to be expected.

As the author mentions, the effect on moments in external columns due to axial strain is greatest at the top when caused by wind force, however in the case of internal columns moment due to incidence of the superimposed loading can be greatest at the top and will never be the least there.

The columns of the authors example would shorten under full load about 30 mm so with no load on the floors the internal columns might shorten only some fraction of that. The writer has never seen cracks from either cause of axial strain, and it seems reasonable to believe the floor constructions tend to

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<sup>1)</sup> See "Preliminary Publication" — voir «Publication Préliminaire» — siehe «Vorbericht», p. 433.

equalise the column strains, so that the authors moment diagrams Figs. 2 and 3 will be modified for cases of stiff floors.

Of course, variable settlement of foundations could have more effect on the moments than the strain due to either wind or incidence of loading, but it is assumed the building referred to is founded on rock.

### **Summary**

The author reminds us of the effect in steel framed tier buildings of conventional walls, curtain walls, stiff floors and foundation-settlements.

### **Résumé**

Pour les portiques étagés multiples, l'auteur rappelle l'influence des parois traditionnelles, des murs-rideaux, des dalles rigides et des tassements des fondations.

### **Zusammenfassung**

Der Autor erinnert an die Auswirkung in Stahlstockwerkrahmen von konventionellen Wänden, Vorhangwänden, steifen Decken und Fundamentsetzungen.