EXPERIMENTAL TESTS OF BEAMS WITH ECCENTRIC WEB OPENINGS

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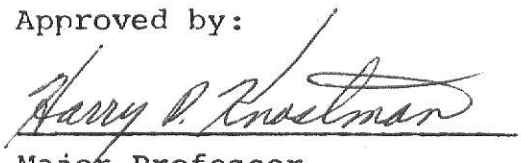

Major Professor

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NOMENCLATURE

Symbols

A - cross-sectional area

E - modulus of elasticity

F - force

G - shear modulus

I - moment of inertia

L - length

M - moment

Q - resultant force

P - applied load

V - shear

a - half the distance between cross-sections

d - length of moment arm

f - stress

h - depth

k - kip

m - moment due to unit load

t - thickness

v - shear due to unit load

x - longitudinal distance from centerline of opening

y - transverse distance from edge of i^{th} element to stress resultant

y - transverse distance from centroidal axis to any fiber

z - transverse distance from outer edge of flange to i^{th} element

δ - deflection

σ - normal stress

Subscripts

B - bottom section

N - net section

O - distance referring to moment-shear ratio

P - plastic

T - top section

b - bending

i - numerical designation

u - ultimate

w - web

1 - primary

1 - section including cover plates

2 - secondary

Abbreviations

HME - high moment edge

in. - inch, inches

ksi - kips per square inch

LME - low moment edge

N.A. - neutral axis