

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	Fault Level Calculation:																
B	<div><div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div>Star-Delta Transformer</div><div>2500 KVA</div><div>6.6kV/415V</div><div>%Z: 5%</div></div></div>	<div><math display="block">I_{Secondary} = \frac{KVA}{(\sqrt{3})(V_{Secondary})} = \frac{2500 \times 10^3}{(\sqrt{3})(415)} = 3478.01A</math><math display="block">I_{Short\ Circuit} = \frac{I_{Secondary}}{Z_{\%}} = \frac{3478.01}{5\%} = 69.56kA</math></div>															
C	Copper Bus-Bar Sizing (2 Second Fault):																
D	<div><math display="block">A_{Minimum} = \frac{I_{Short\ Circuit} \times \sqrt{Duration\ Of\ Fault}}{k_{Thermal\ Capacity\ Of\ Material}} = \frac{69.56 \times 10^3 \times \sqrt{2}}{143} = 687.92mm^2</math><math display="block">A_{Rated\ Current} = \frac{I_{Secondary}}{K_{Current\ Density\ Factor}} = \frac{3478.01}{1.5} = 2318.67mm^2</math></div>																
E	Applicable Standards: IEC 60865, IEC 60947																
F	<div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div></div><div><math display="block">I_{Motor} = \frac{(HP)(745.7)}{(\sqrt{3})(V)(\cos \theta)}</math></div><div><div>M</div><div>M1: 35HP</div></div></div>	<div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div></div><div><div>M</div><div>M2: 50HP</div></div></div>	<div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div></div><div><div>M</div><div>M3: 100HP</div></div></div>	<div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div></div><div><div>M</div><div>M4: 75HP</div></div></div>													
G	<div><div><math display="block">I_{Motor\ 1} = \frac{35 \times 745.7}{\sqrt{3} \times 415 \times 0.85} = 42.70A</math></div><div><math display="block">I_{Motor\ 3} = \frac{100 \times 745.7}{\sqrt{3} \times 415 \times 0.85} = 122.05A</math></div></div>																
H	<div><div><math display="block">I_{Motor\ 2} = \frac{50 \times 745.7}{\sqrt{3} \times 415 \times 0.85} = 61.00A</math></div><div><math display="block">I_{Motor\ 4} = \frac{75 \times 745.7}{\sqrt{3} \times 415 \times 0.85} = 91.54A</math></div></div>																
Author: Yasteer Sewpersad					Single Line Diagram & Fault Level Calculation										File:		
Date: 2025/04/05															Folio: 1/1		