

A Publication of the
National Wildfire
Coordinating Group

Fire Behavior Nomograms



PMS 436-3
NFES 2220

MARCH 1992

The "Fire Behavior Nomograms" are excerpted from "How to Predict the Spread and Intensity of Forest and Range Fuels", Richard C. Rothermel, June 1983, with the exception of the nomogram for fuel model #7 which was updated for this publication.

Additional copies of this publication may be ordered from the Great Basin Cache, National Interagency Fire Center, 3833 S. Development Ave., Boise ID 83705. Consult the current "NWCG NFES Catalog Part 2: Publications" at <https://www.nwccg.gov/> for current prices and ordering procedures. Order NFES 2220.

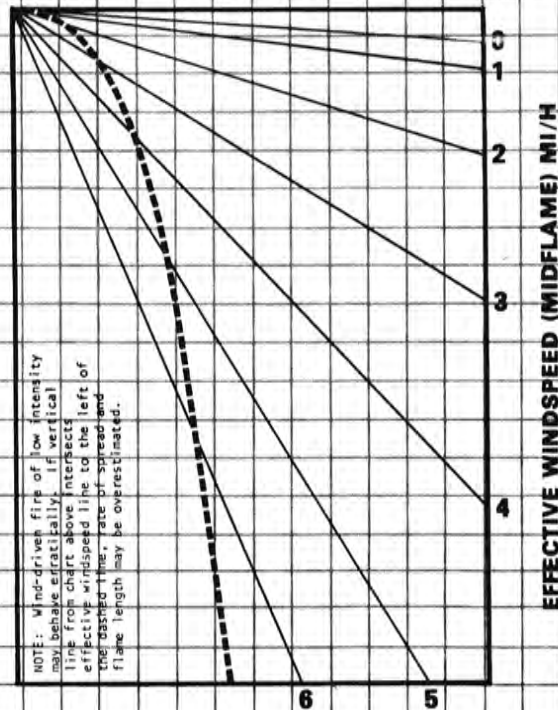
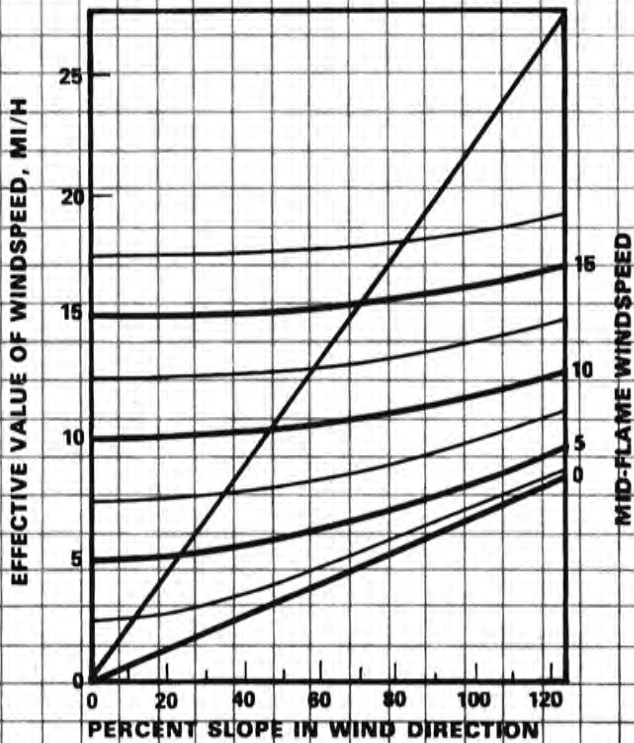
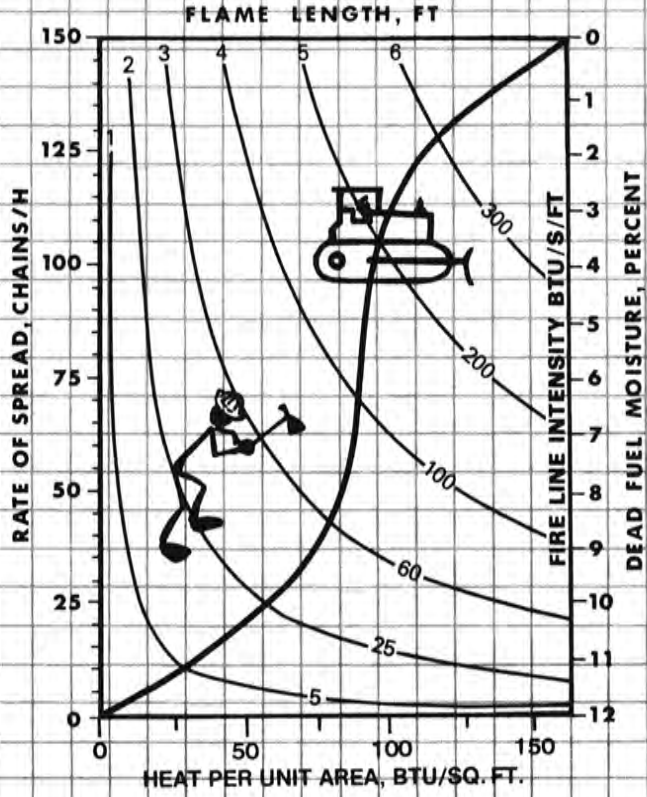
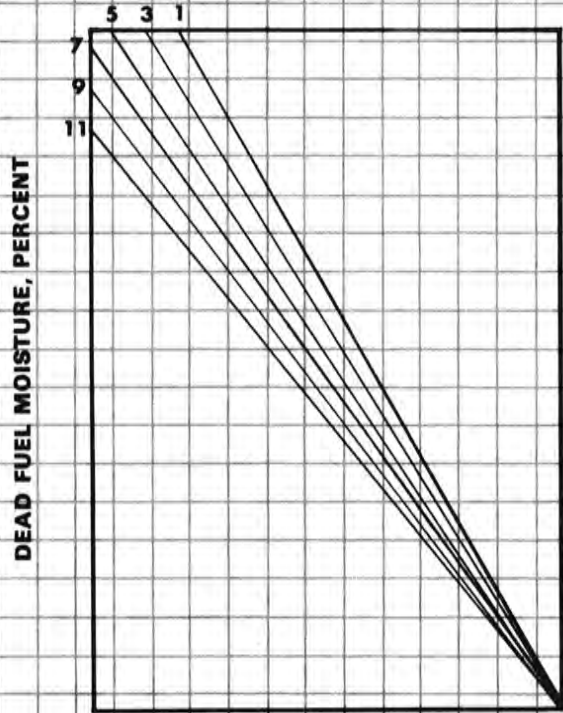


APPENDIX A

Nomograms

Fuel model 1 - low windspeeds

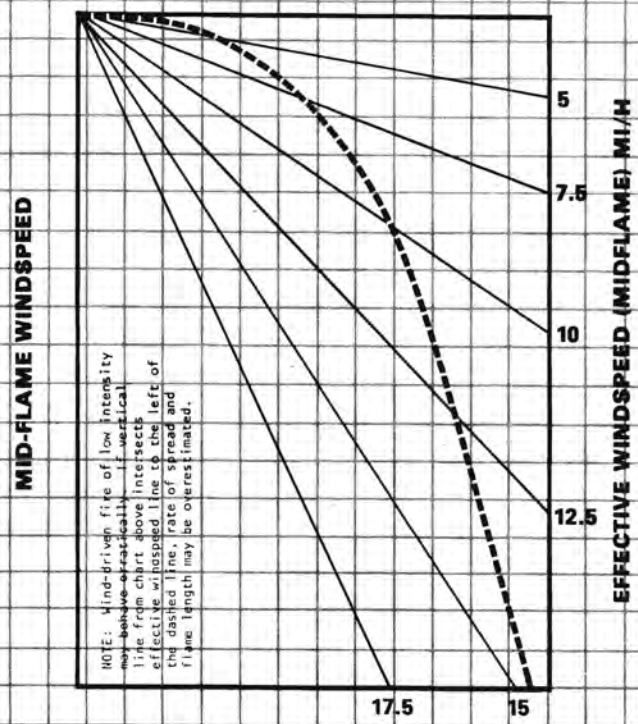
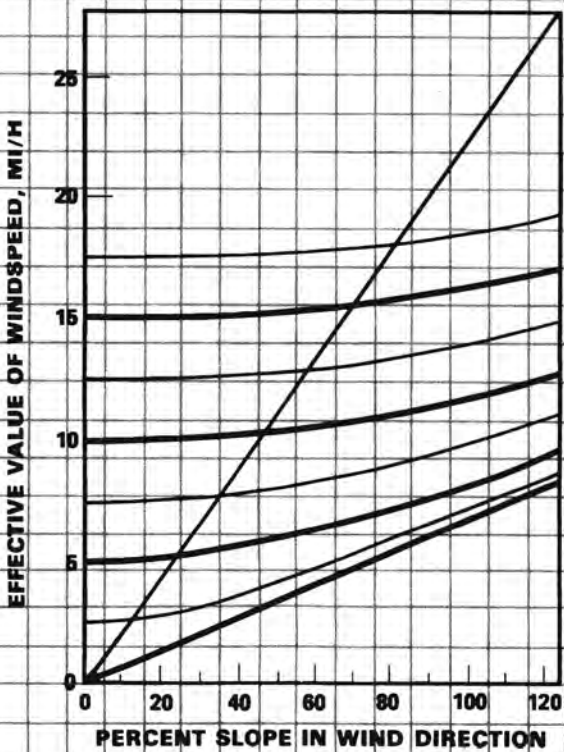
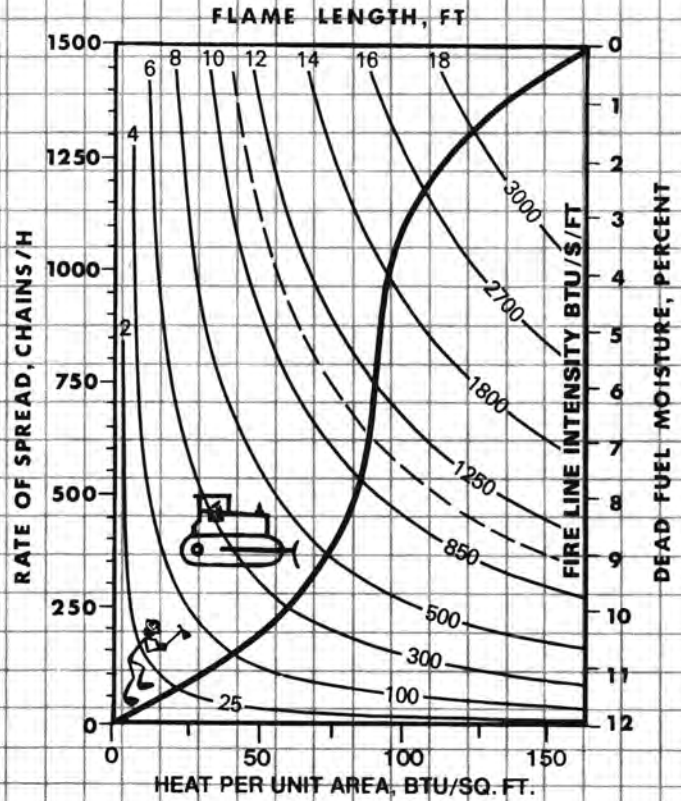
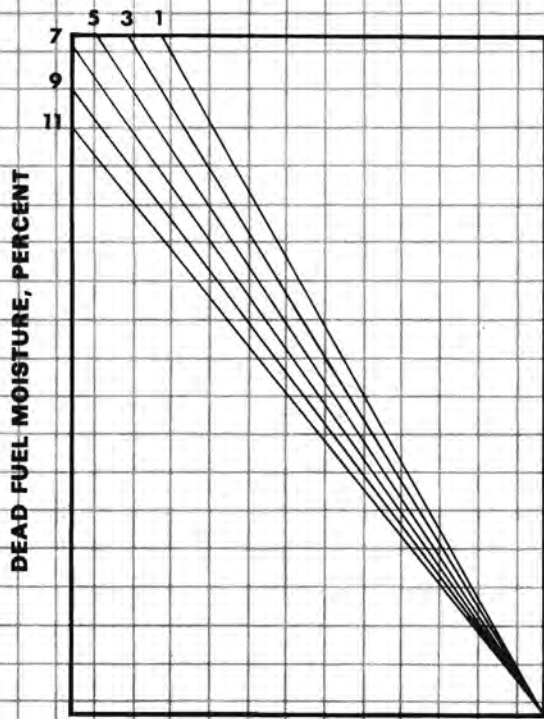
1. SHORT GRASS (1 FT) - LOW WINDSPEEDS



NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

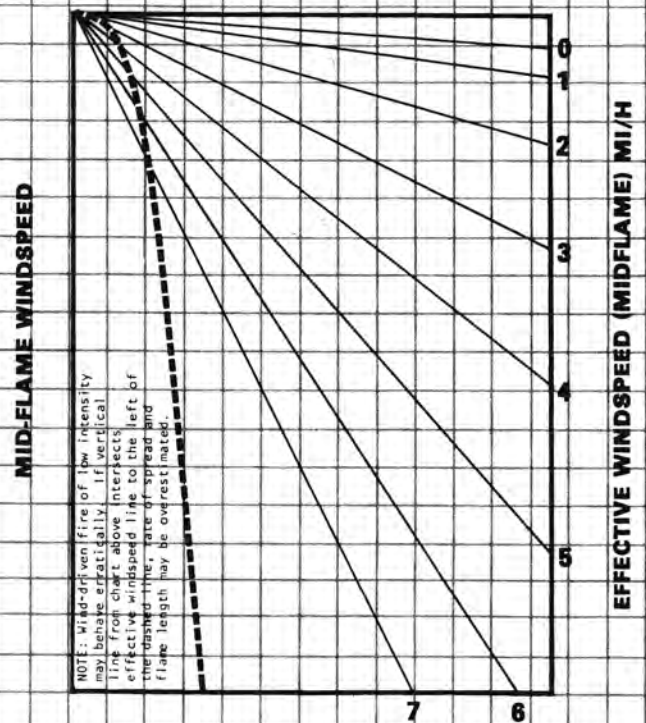
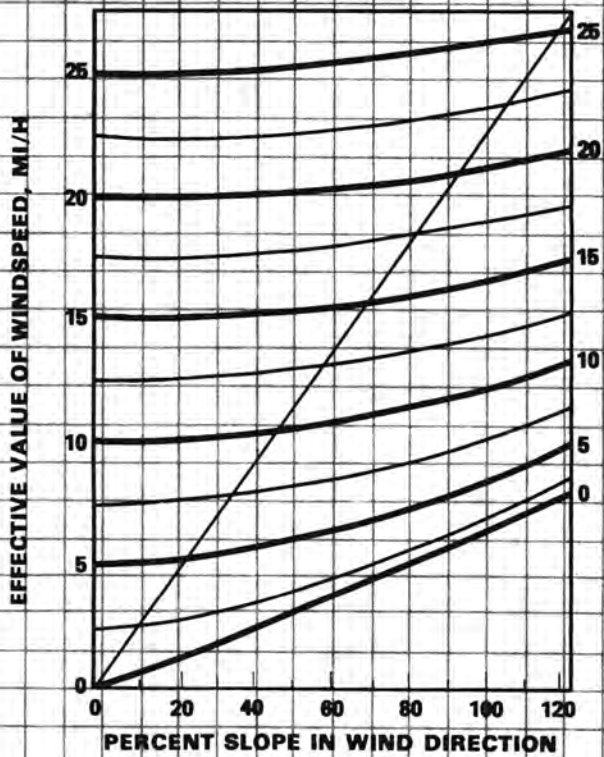
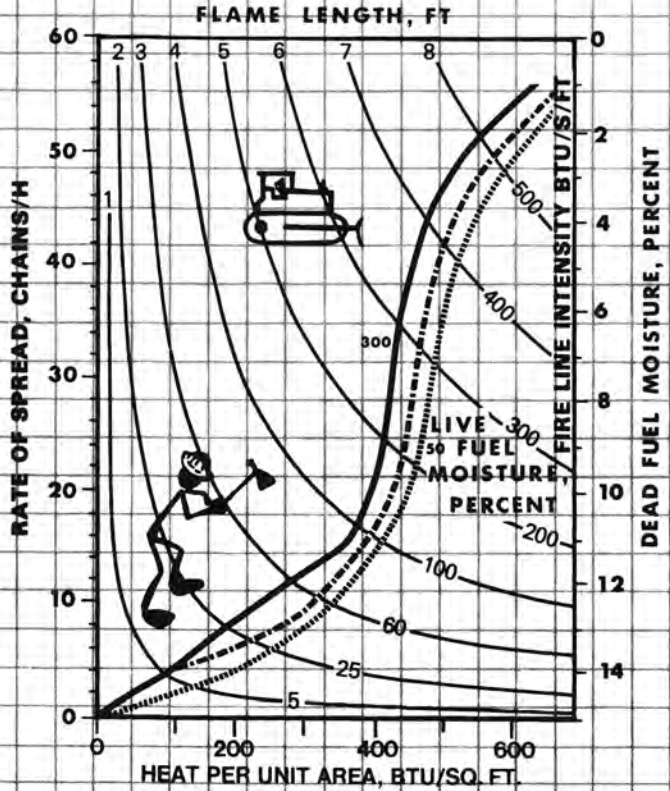
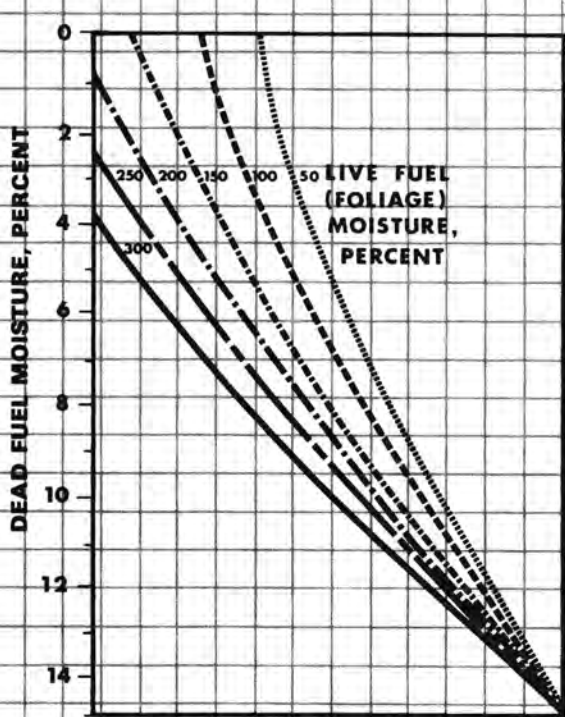
Fuel model 1 - high windspeeds

1. SHORT GRASS (1 FT) - HIGH WINDSPEEDS



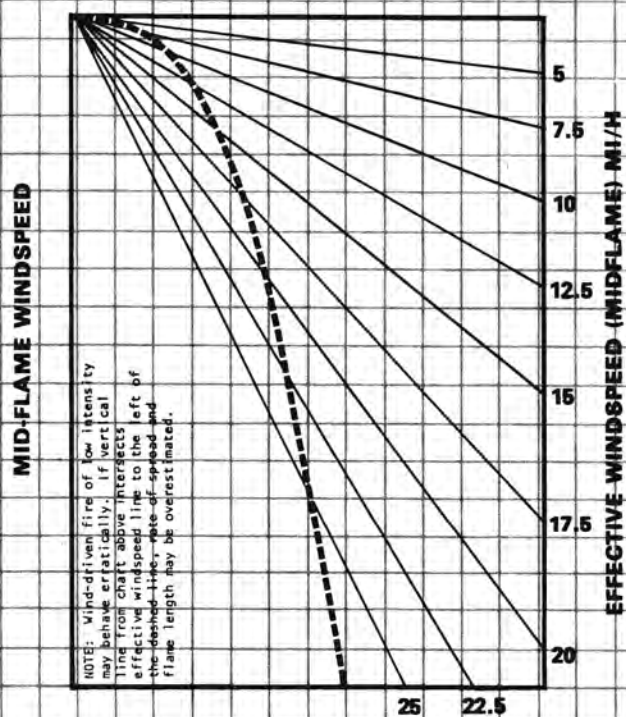
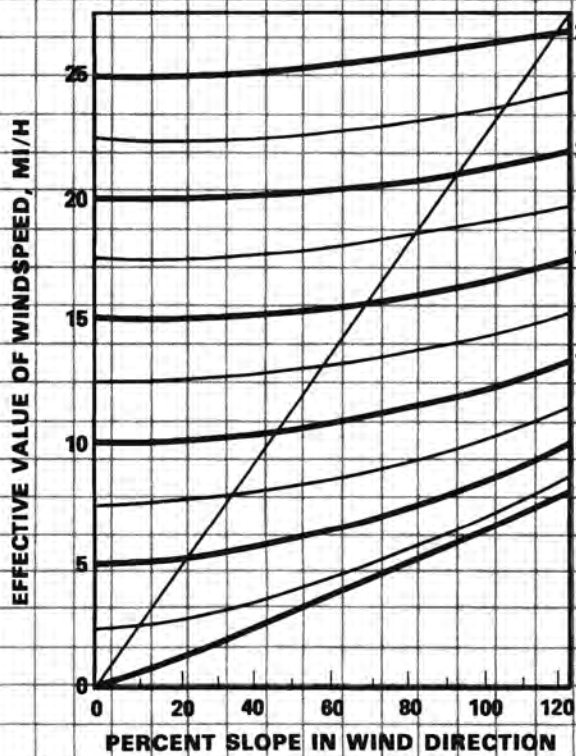
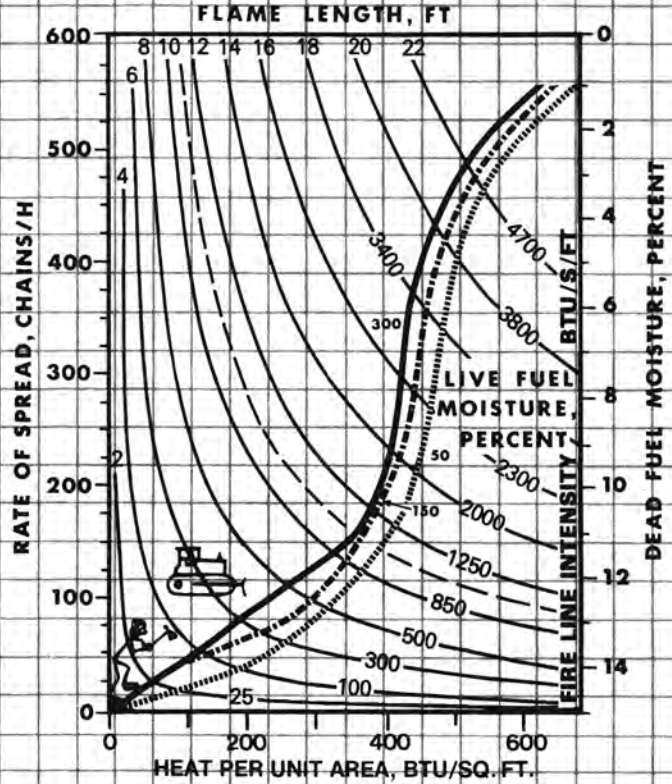
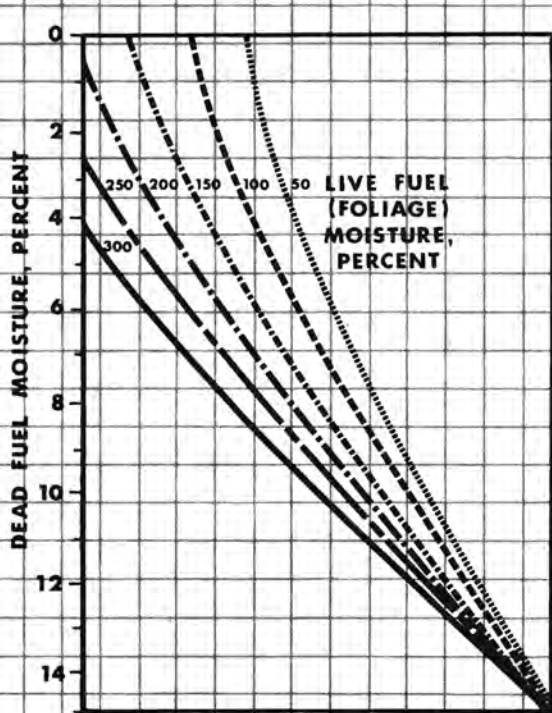
NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

2. TIMBER (GRASS & UNDERSTORY) - LOW WINDSPEEDS



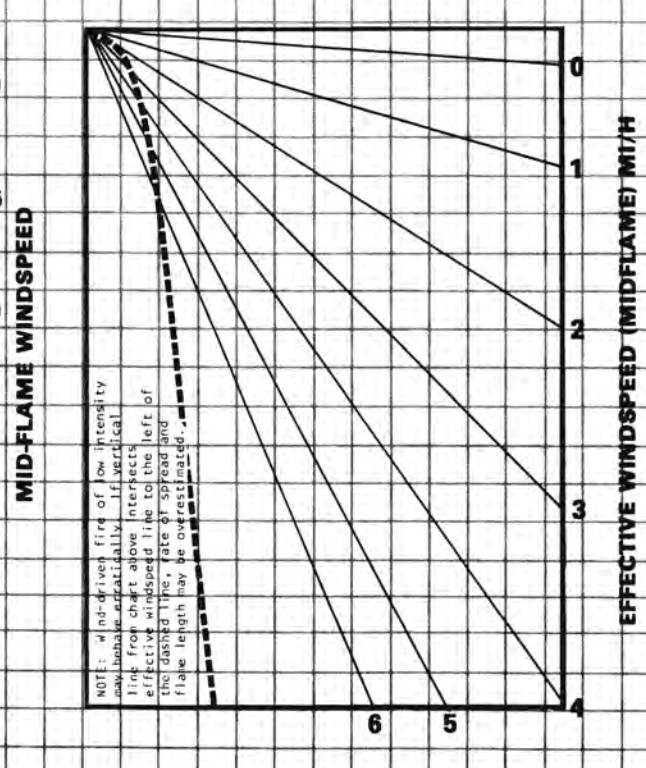
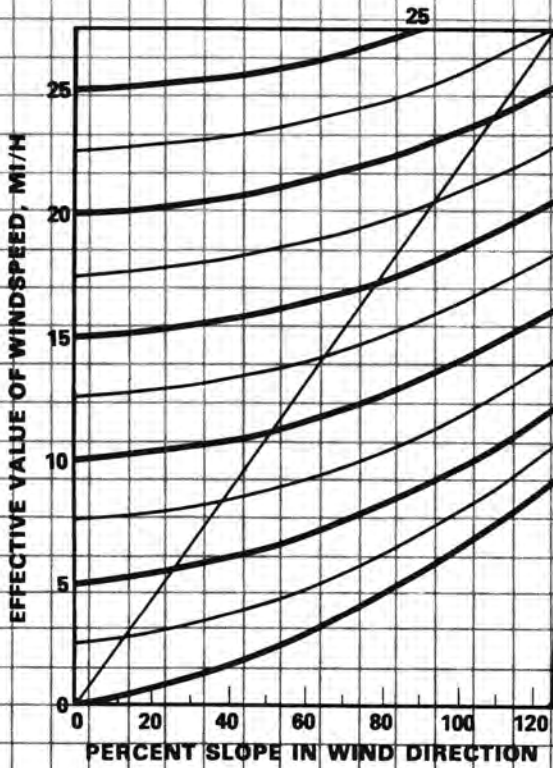
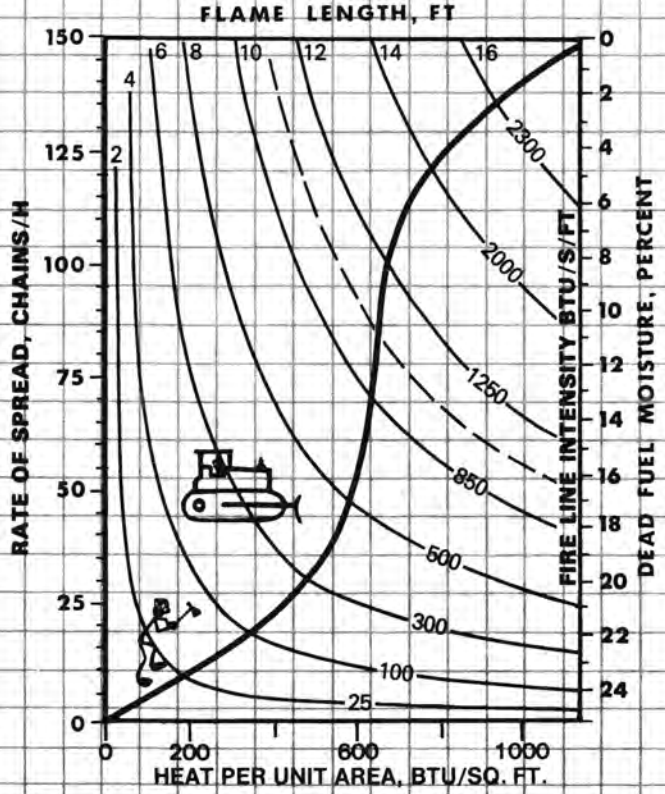
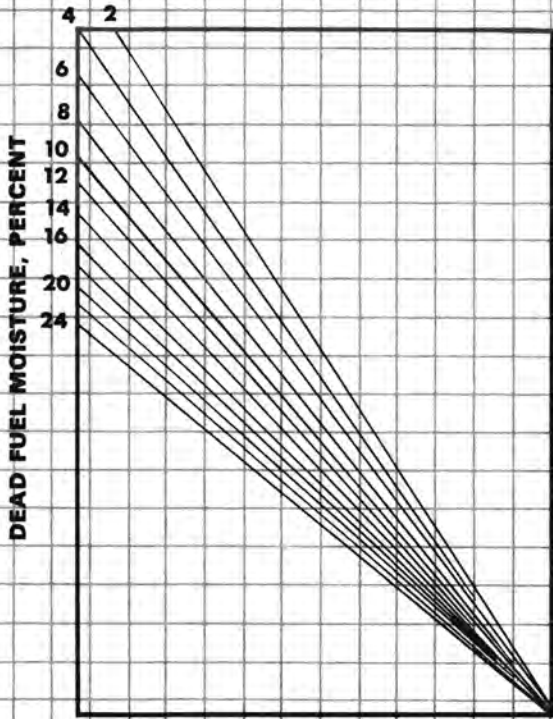
Fuel model 2 - high windspeeds

2. TIMBER (GRASS & UNDERSTORY) - HIGH WINDSPEEDS



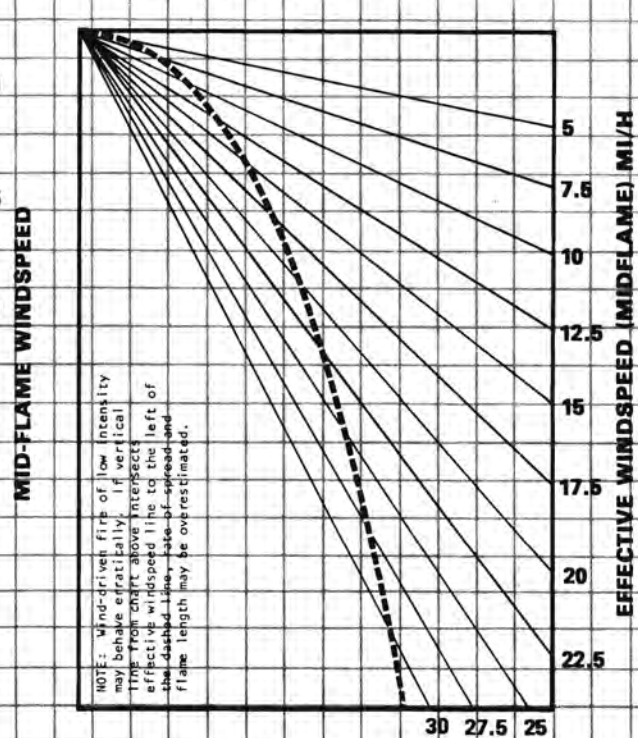
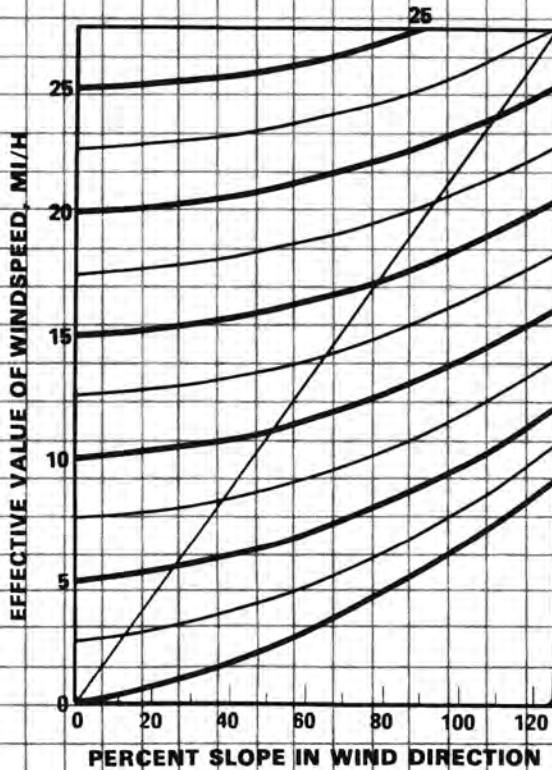
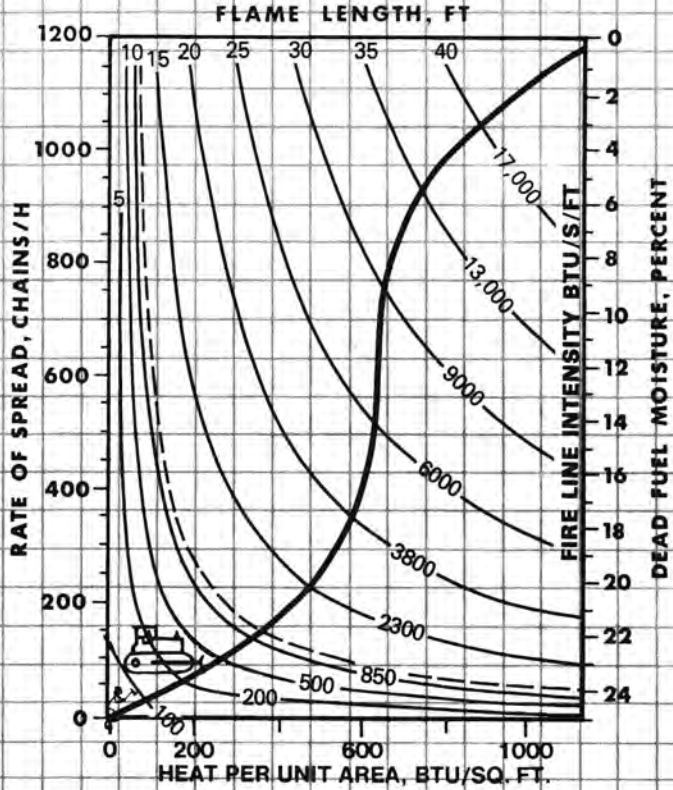
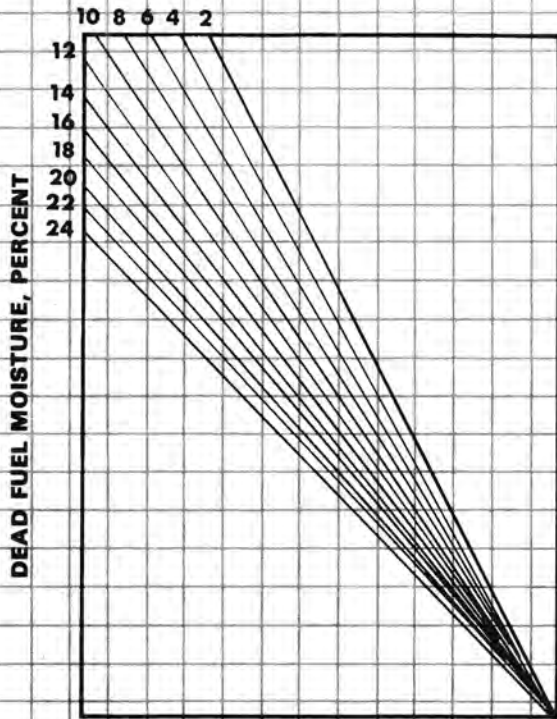
NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

3. TALL GRASS (2.5 FT) - LOW WINDSPEEDS

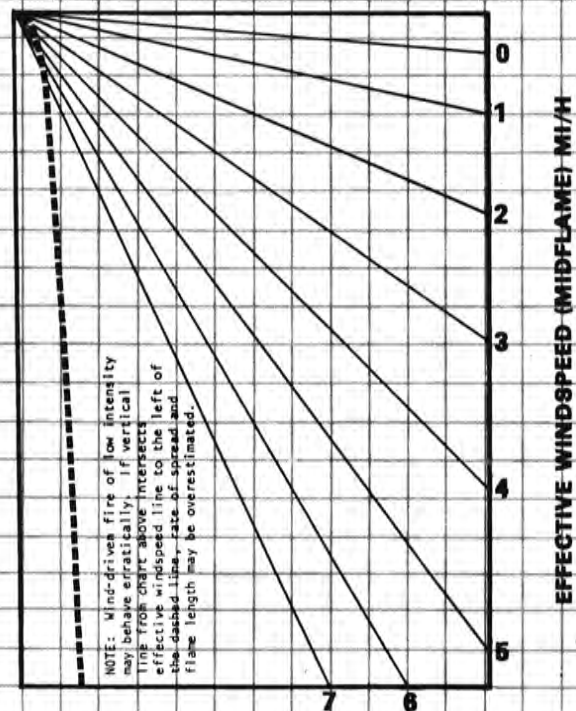
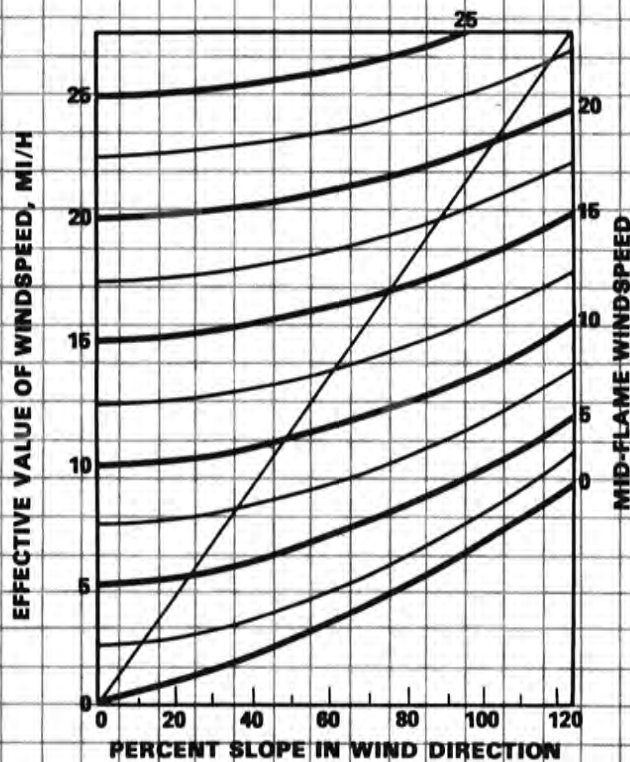
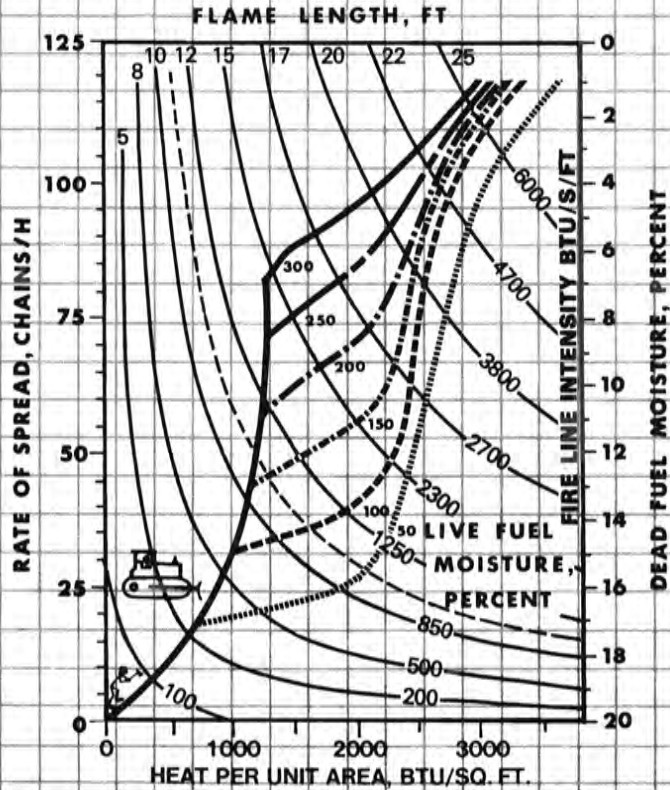
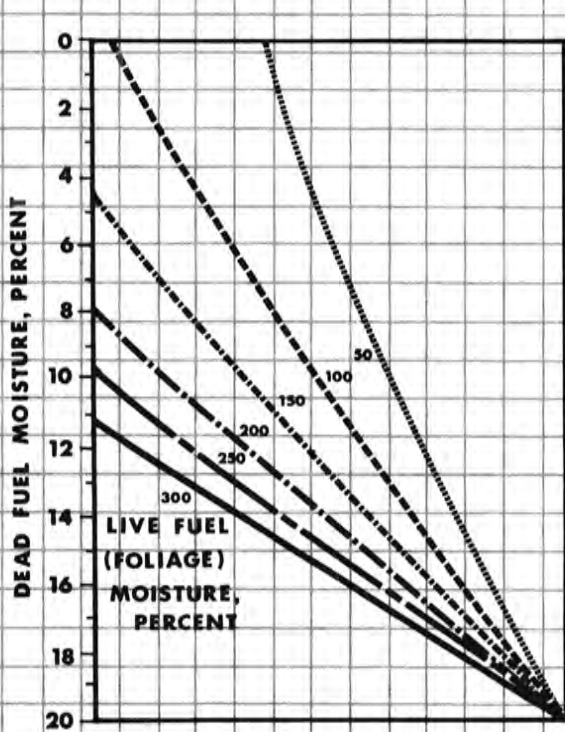


Fuel model 3 - high windspeeds

3. TALL GRASS (2.5 FT) - HIGH WINDSPEEDS



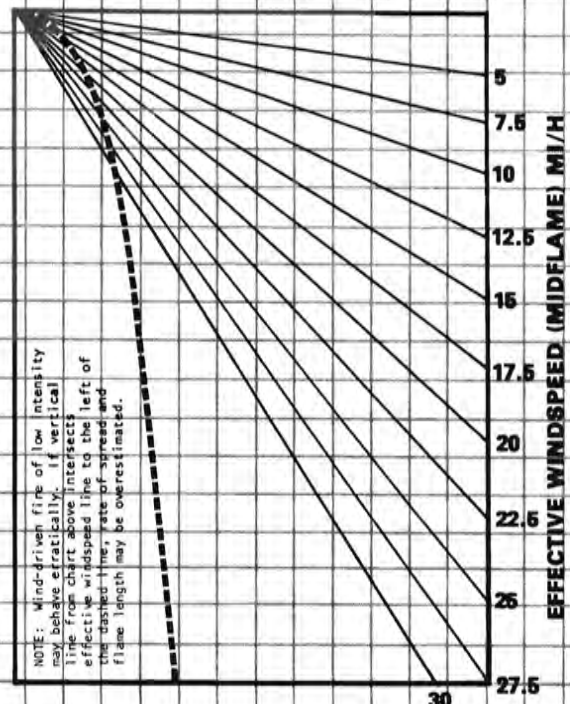
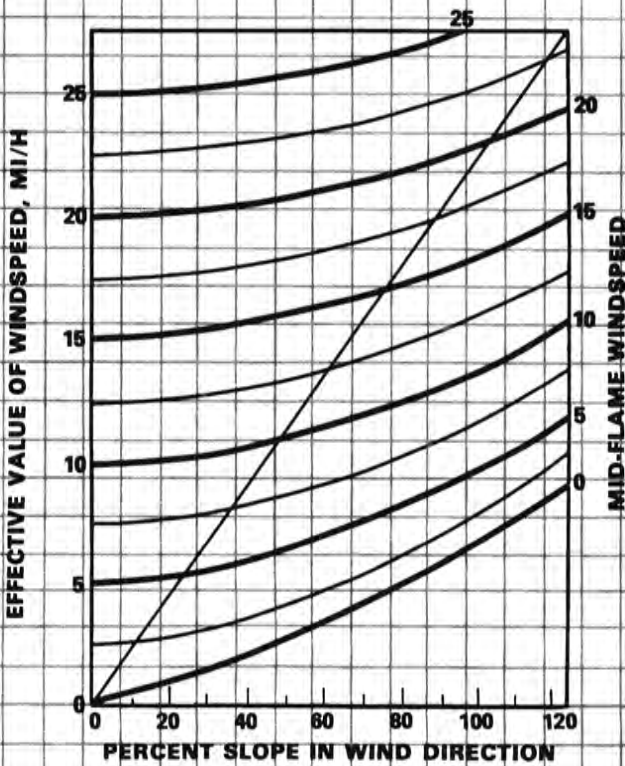
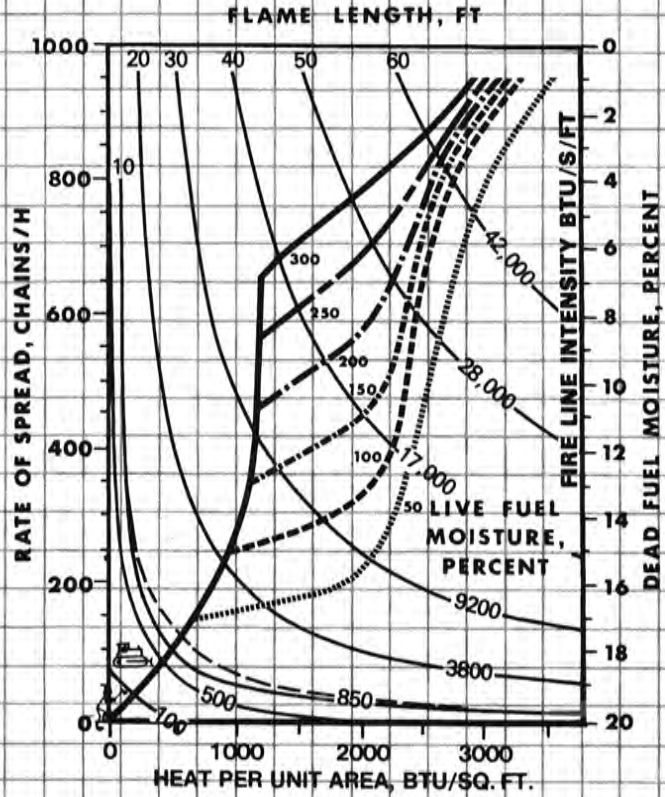
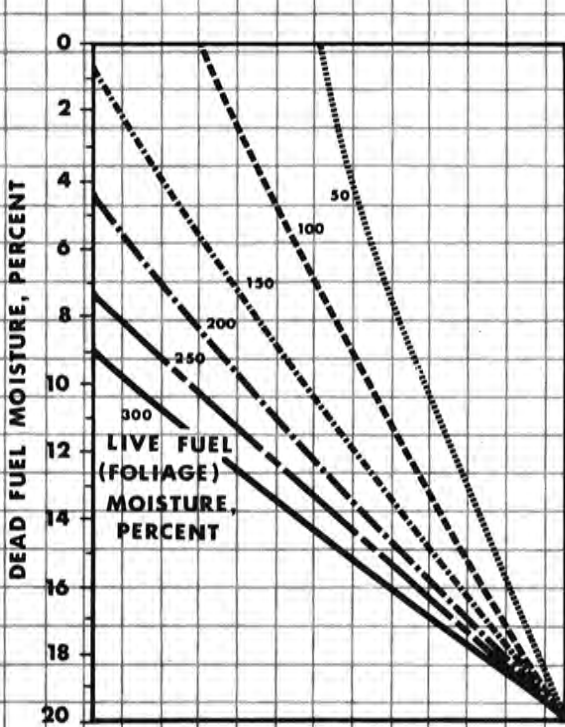
4. CHAPARRAL (6 FT) - LOW WINDSPEEDS



NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

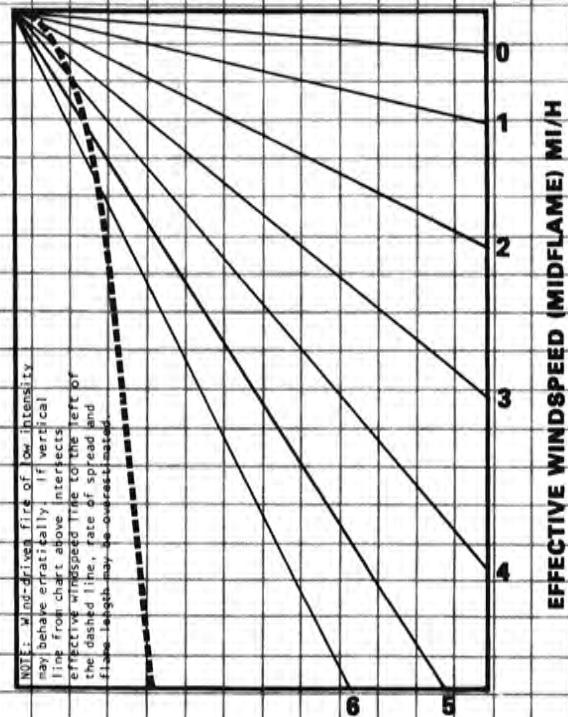
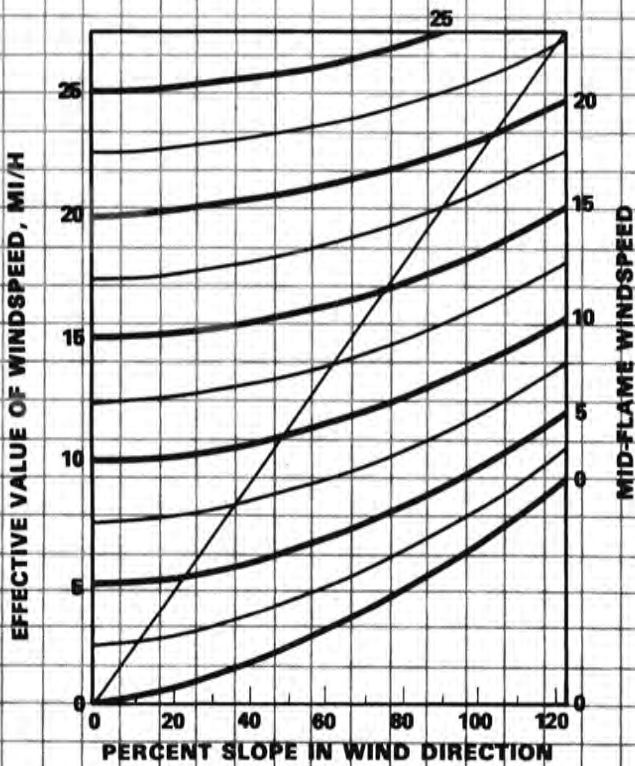
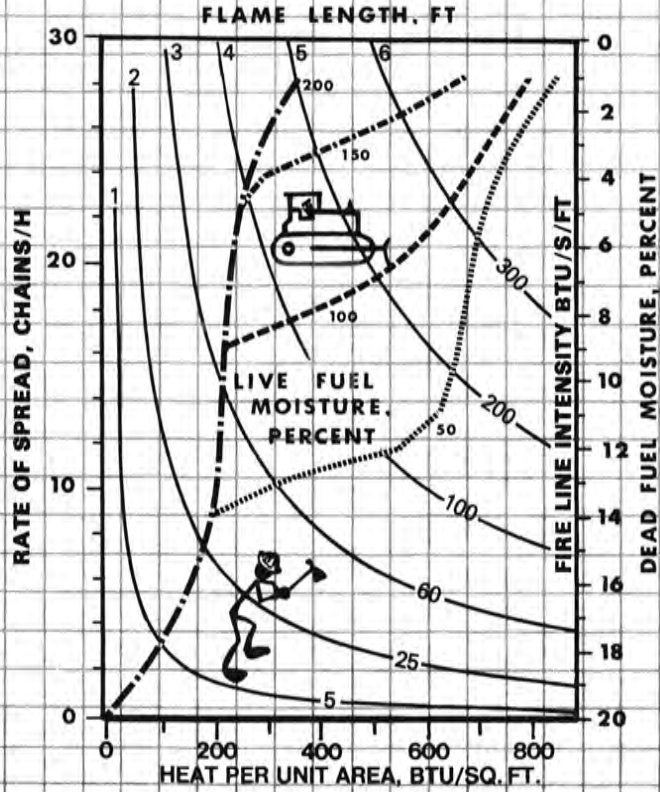
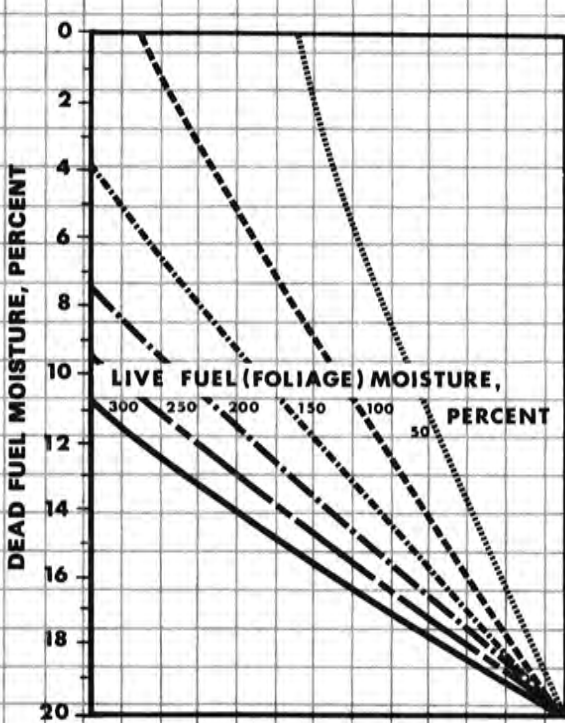
Fuel model 4 - high windspeeds

4. CHAPARRAL (6 FT)- HIGH WINDSPEEDS



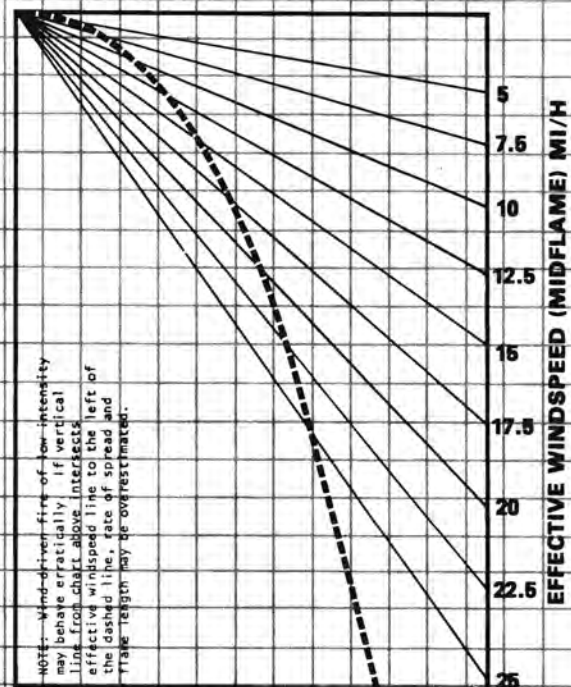
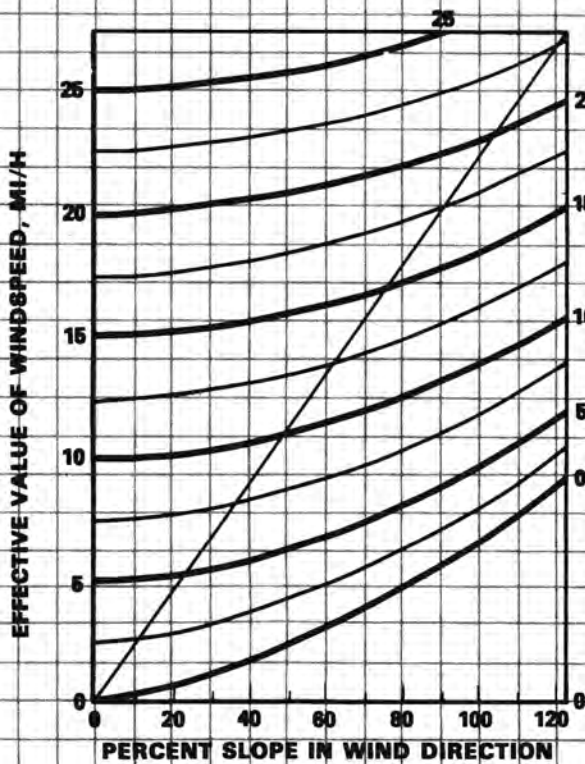
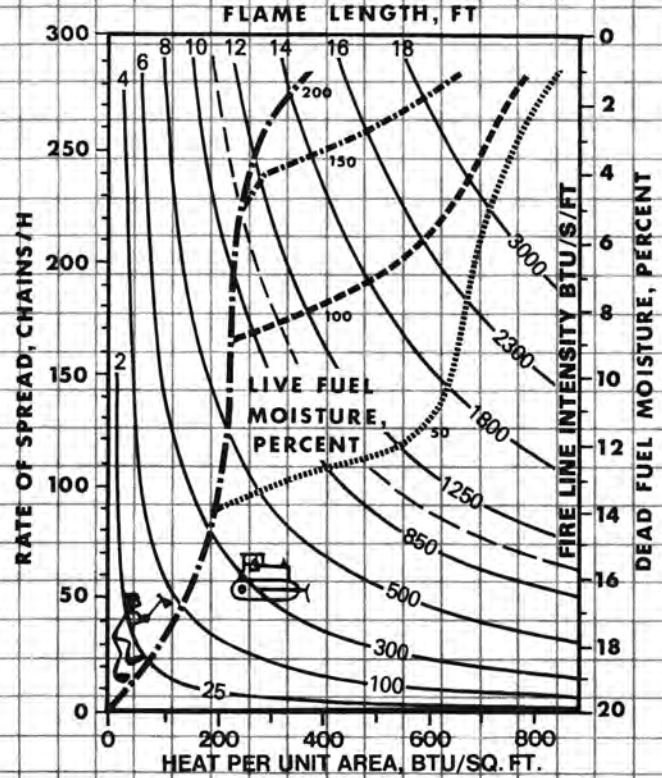
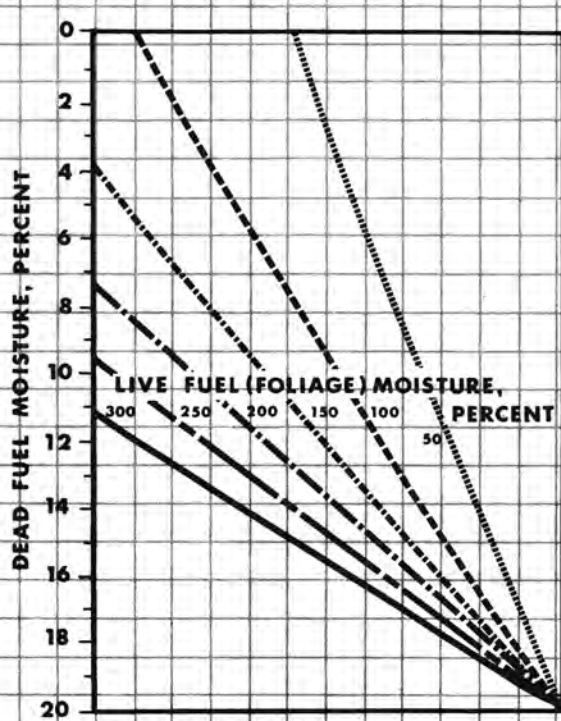
Fuel model 5 - low windspeeds

5. BRUSH (2 FT) - LOW WINDSPEEDS



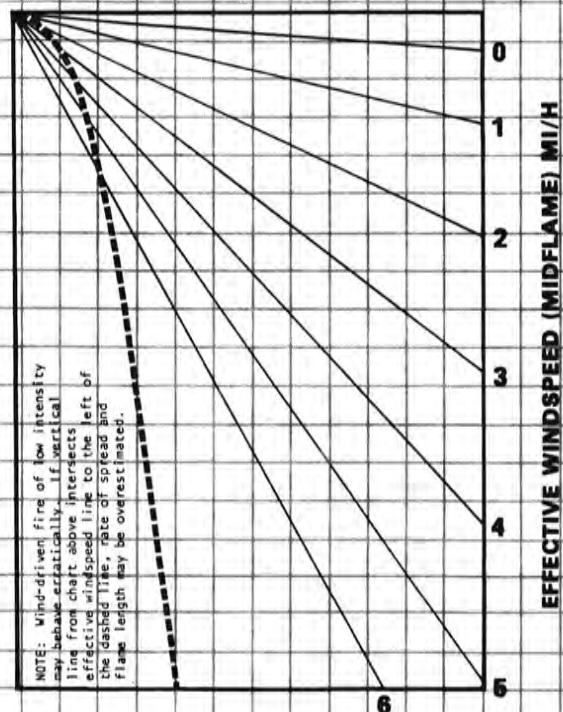
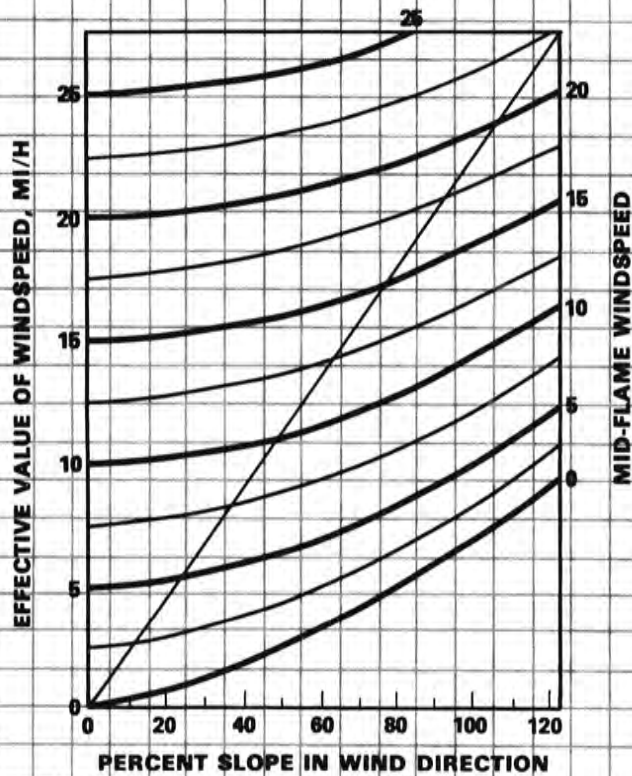
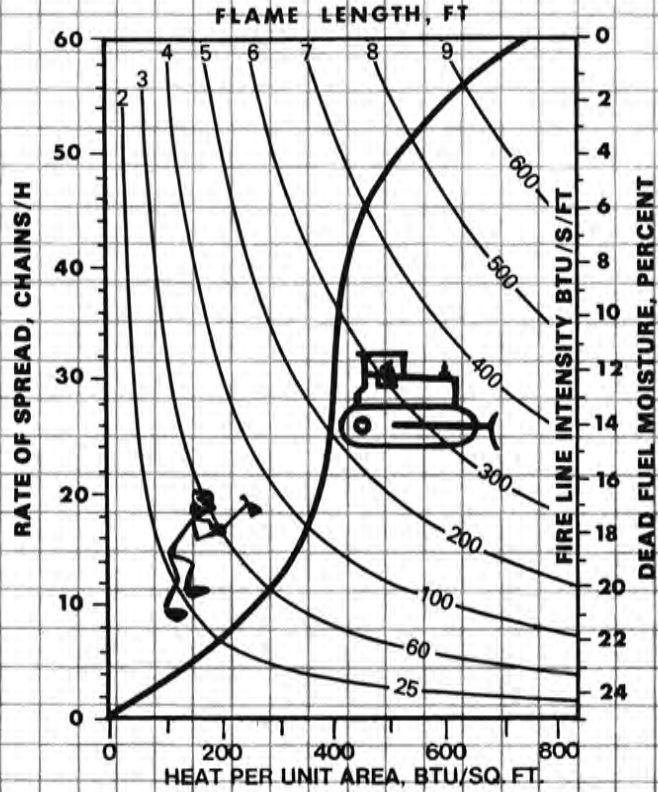
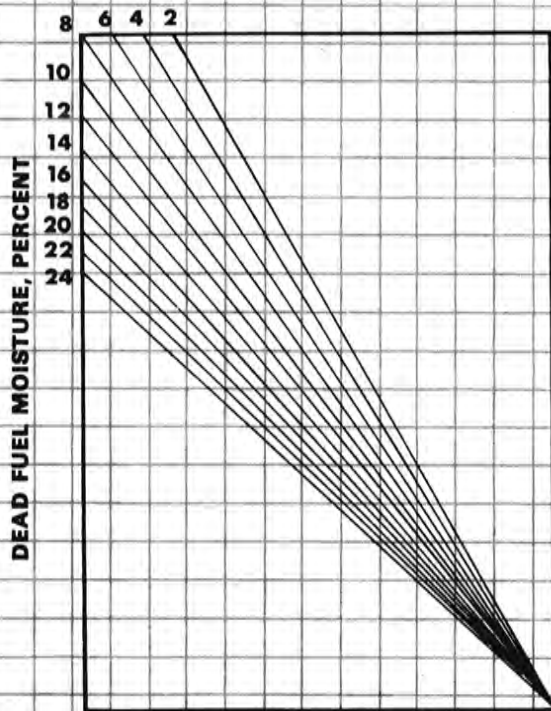
NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

5. BRUSH (2 FT) - HIGH WINDSPEEDS



Fuel model 6 - low windspeeds

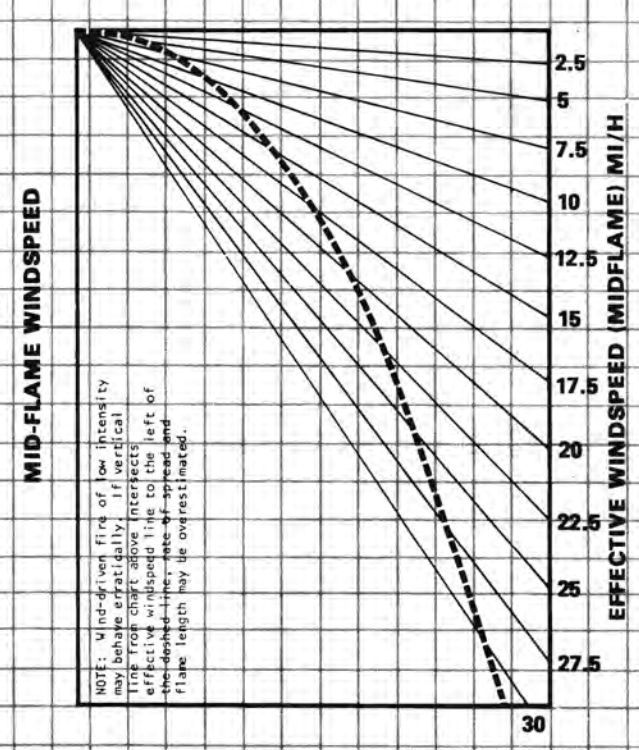
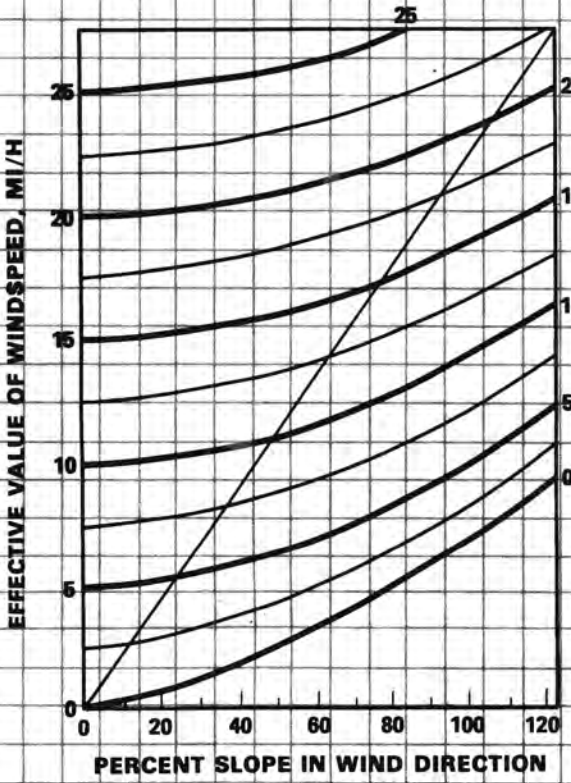
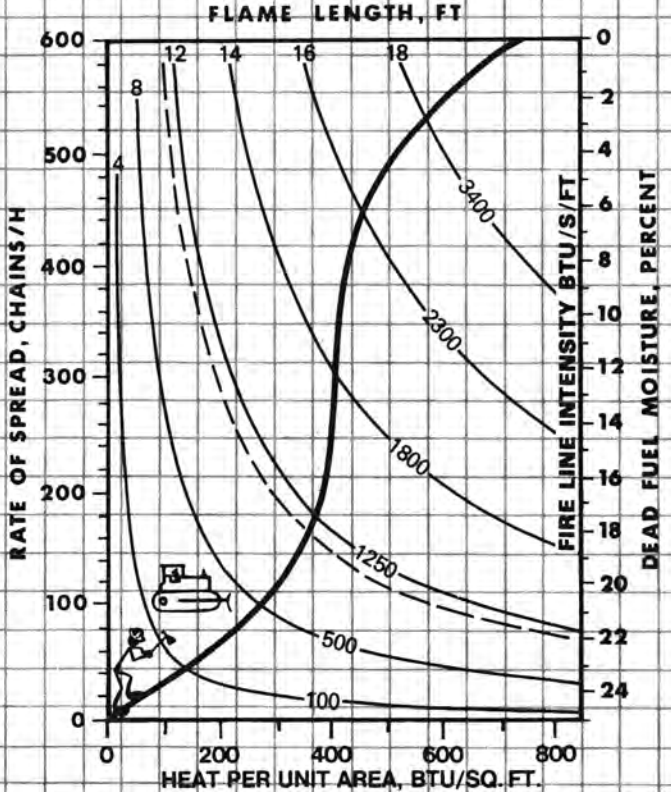
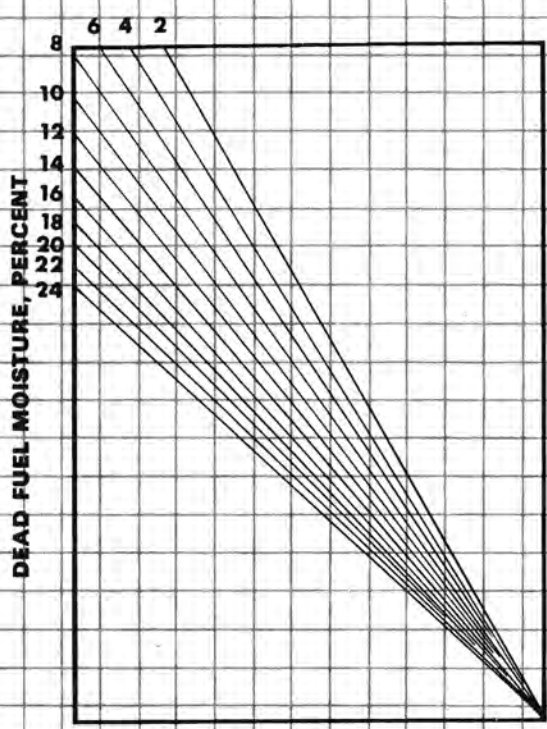
6. DORMANT BRUSH, HARDWOOD SLASH - LOW WINDSPEEDS



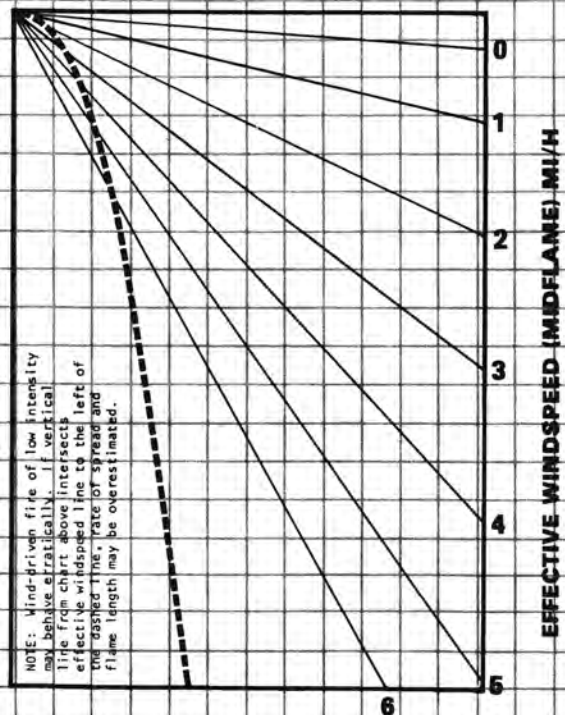
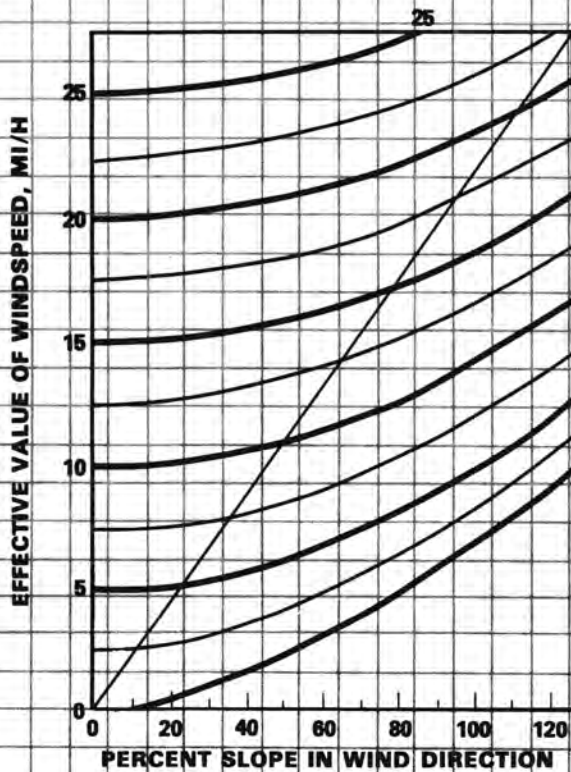
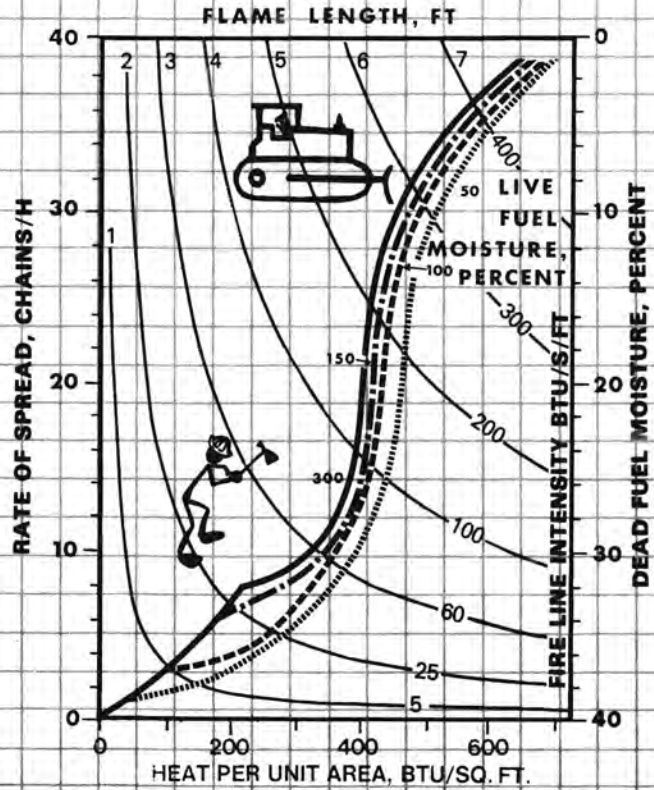
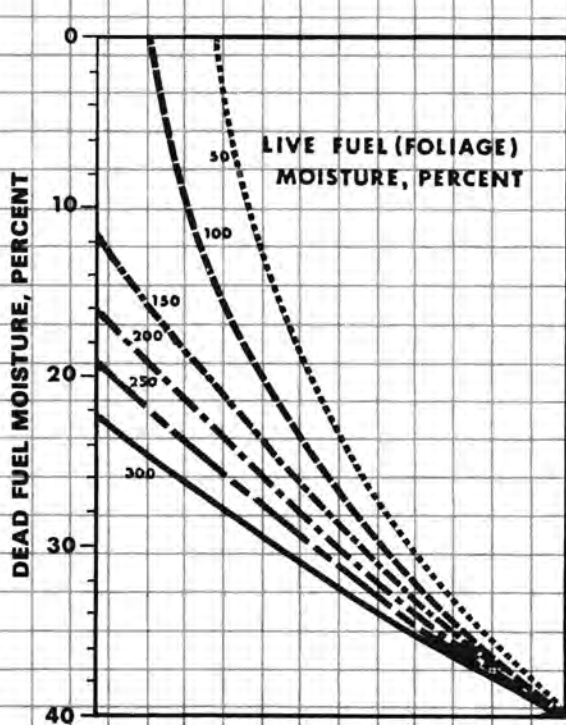
NOTE: Wind-driven fire of low intensity may be overestimated if vertical line from chart above intersects effective wind speed line to the left of the dashed line, rate of spread and flame length may be overestimated.

Fuel model 6 - high windspeeds

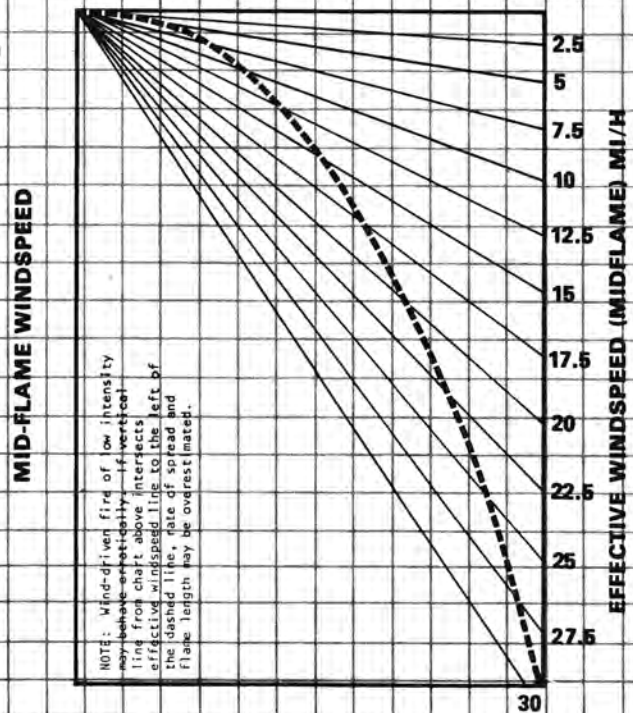
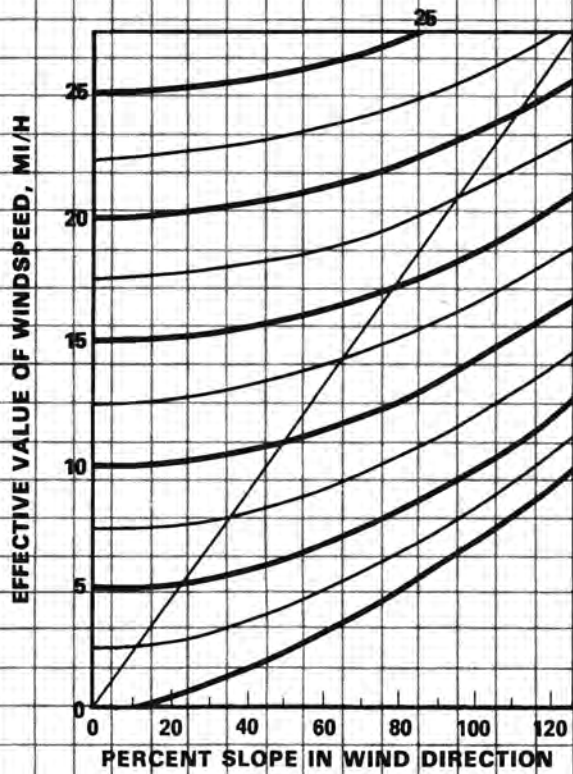
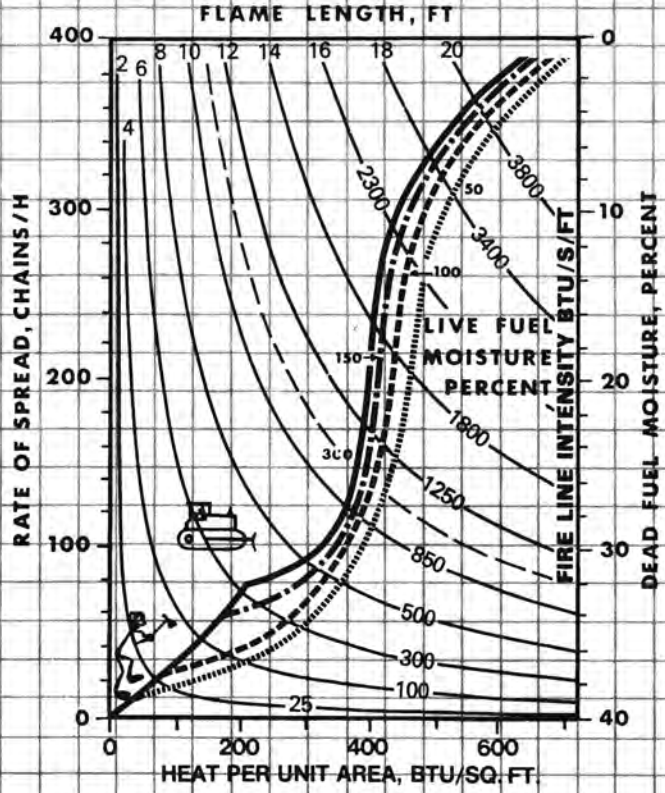
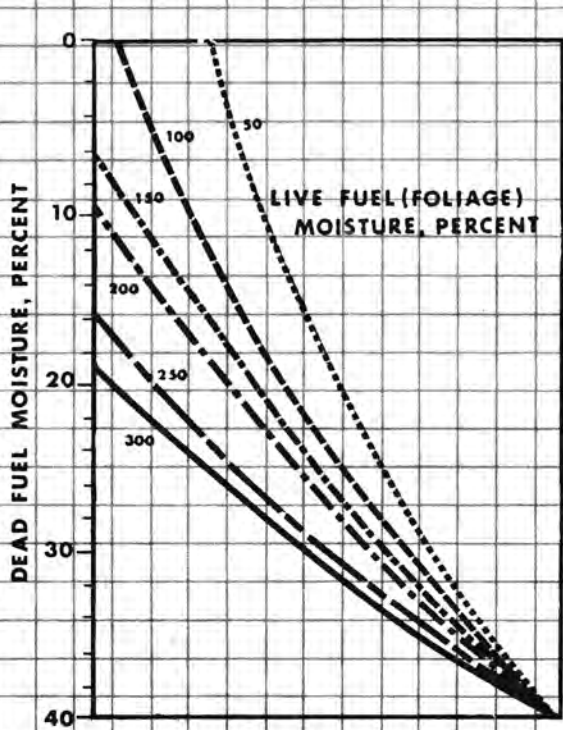
6. DORMANT BRUSH, HARDWOOD SLASH-HIGH WINDSPEEDS



7. SOUTHERN ROUGH - LOW WINDSPEEDS

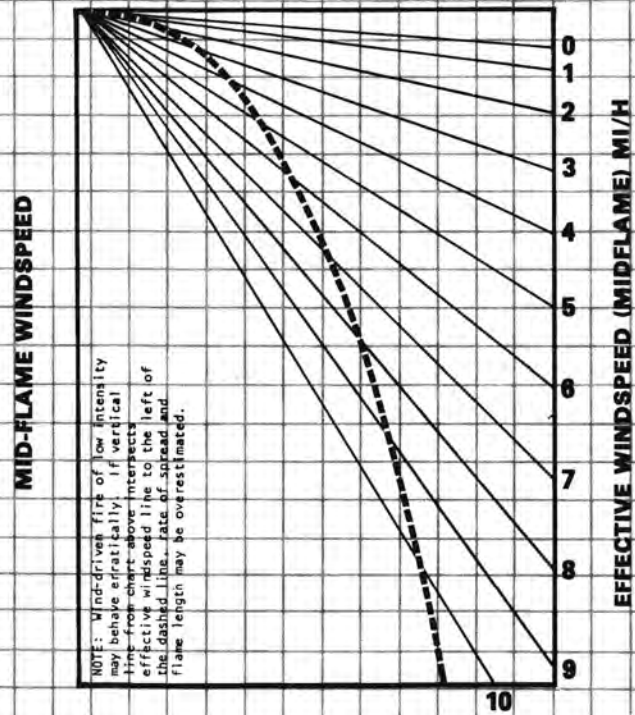
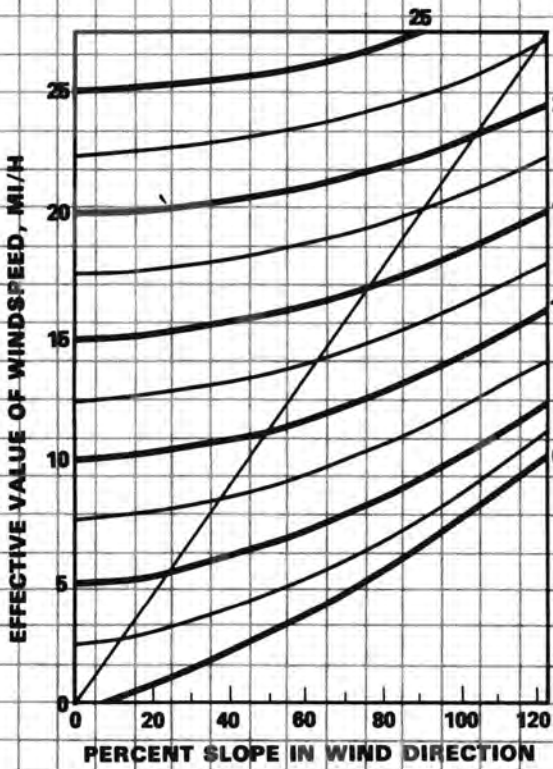
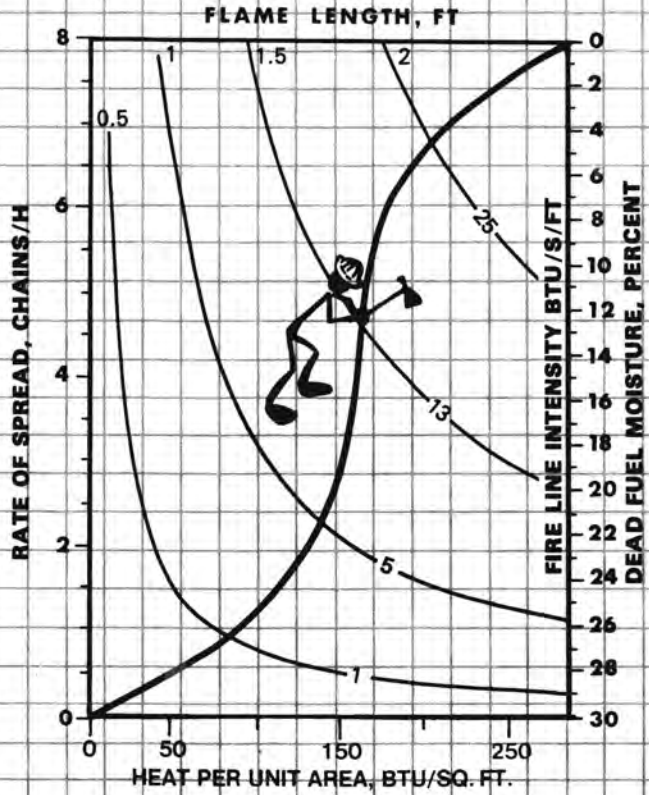
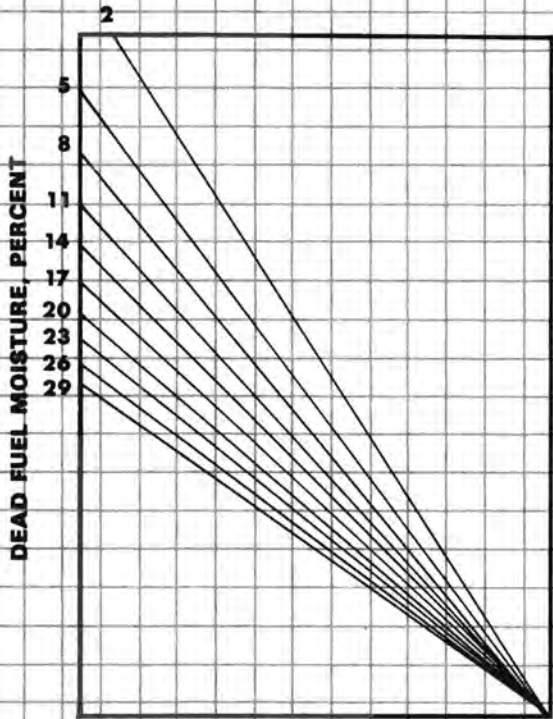


7. SOUTHERN ROUGH - HIGH WINDSPEEDS

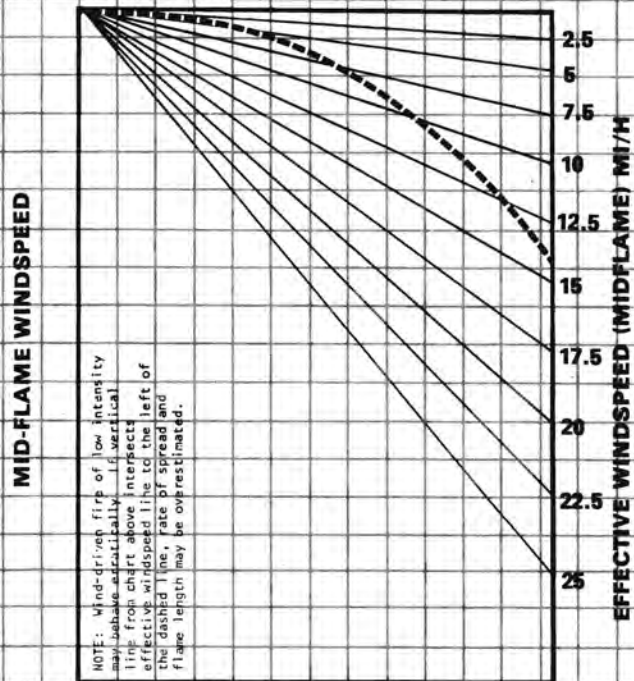
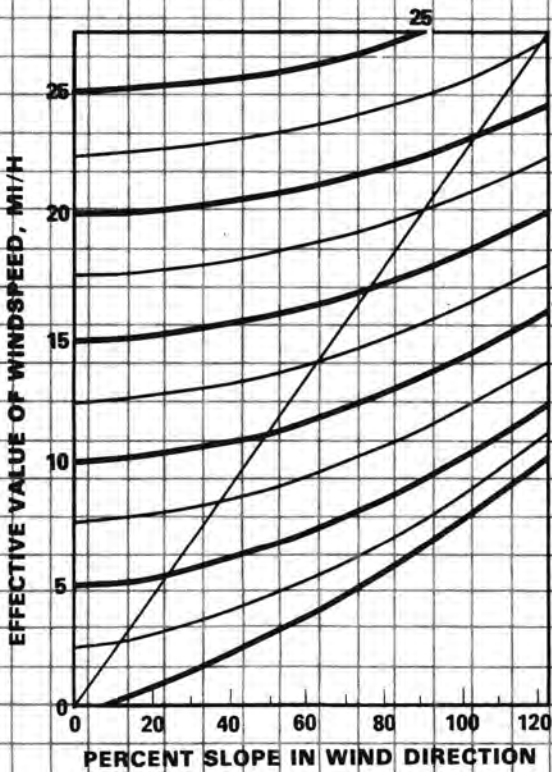
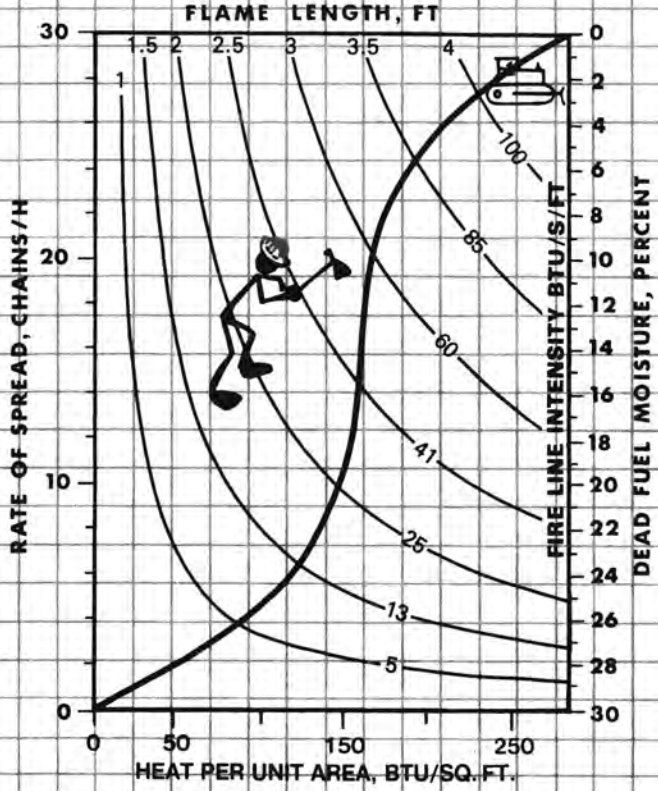
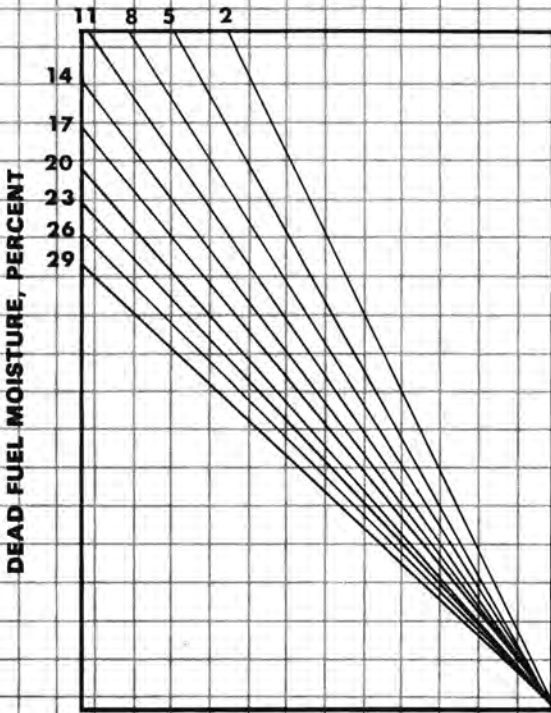


NOTE: Wind-driven fire of low intensity may behave differently. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

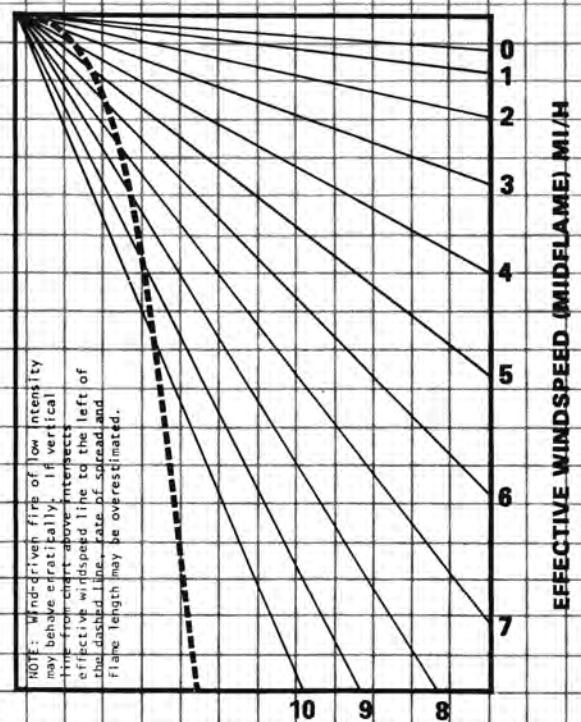
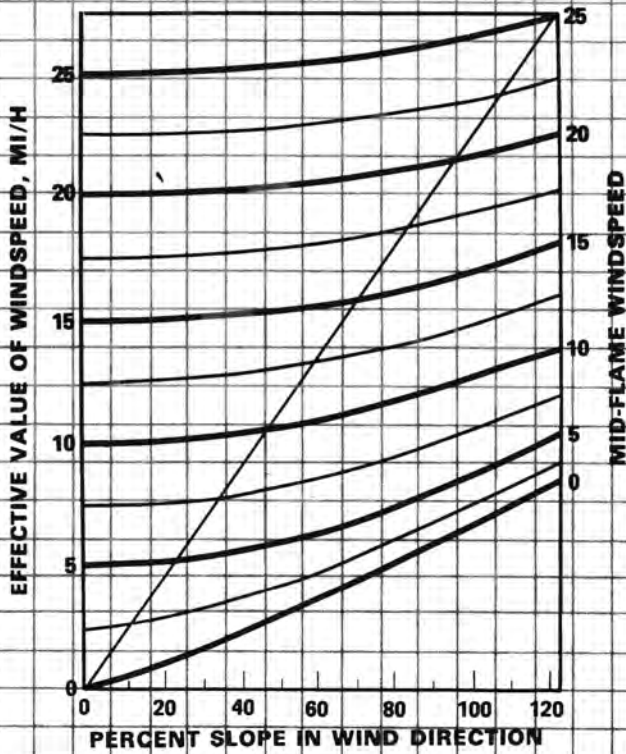
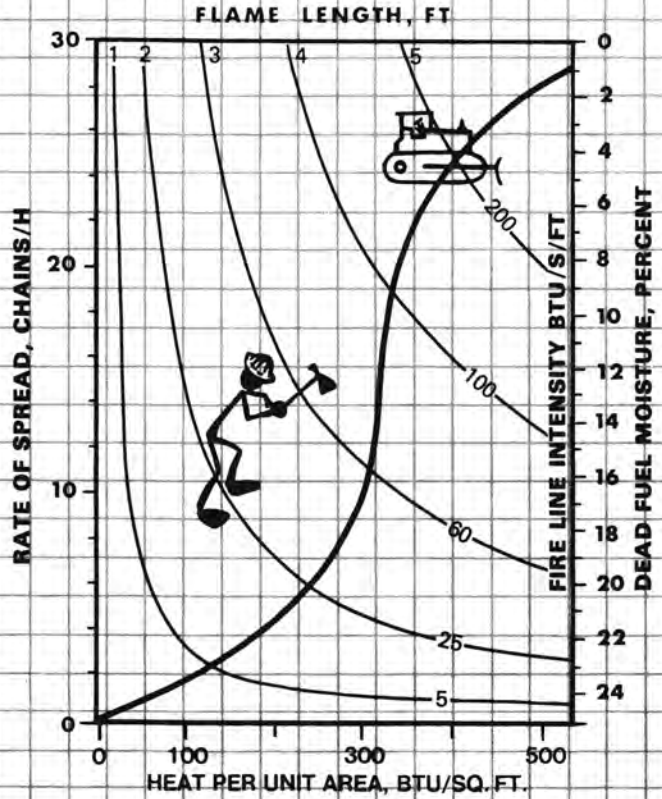
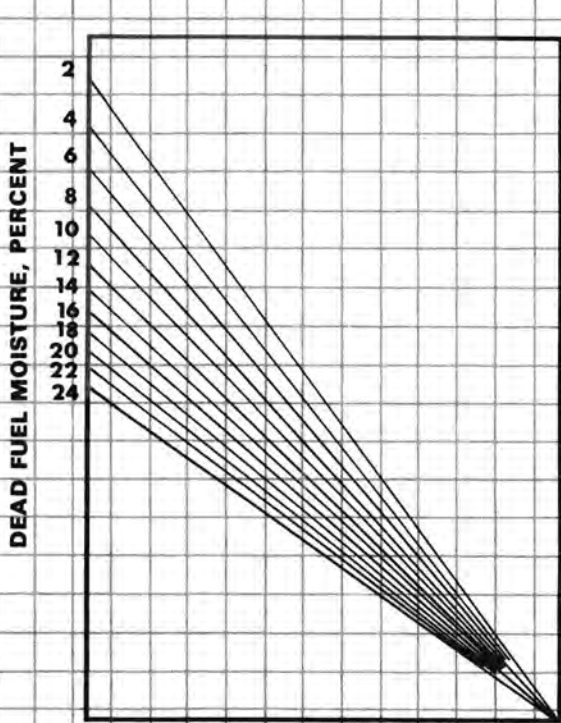
8. CLOSED TIMBER LITTER - LOW WINDSPEEDS



8. CLOSED TIMBER LITTER - HIGH WINDSPEEDS

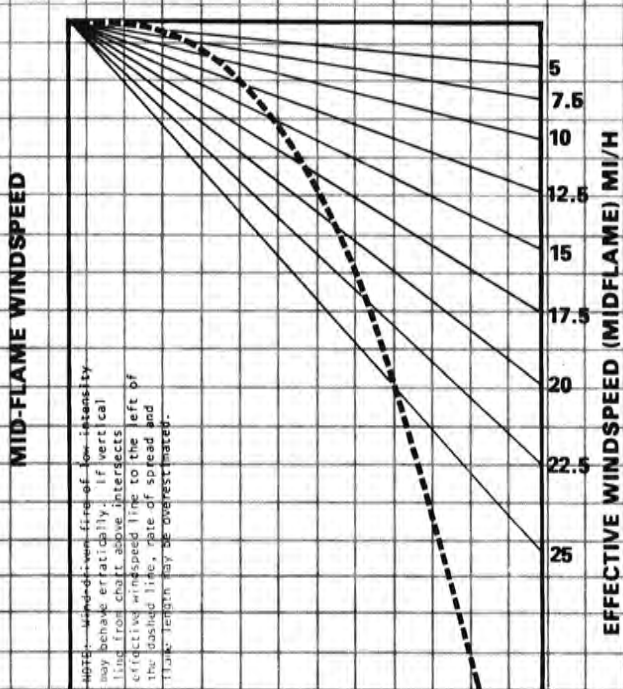
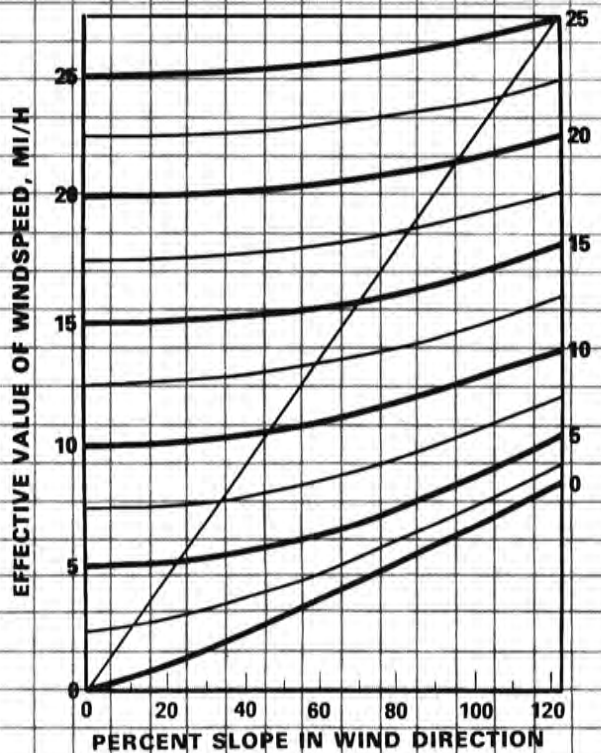
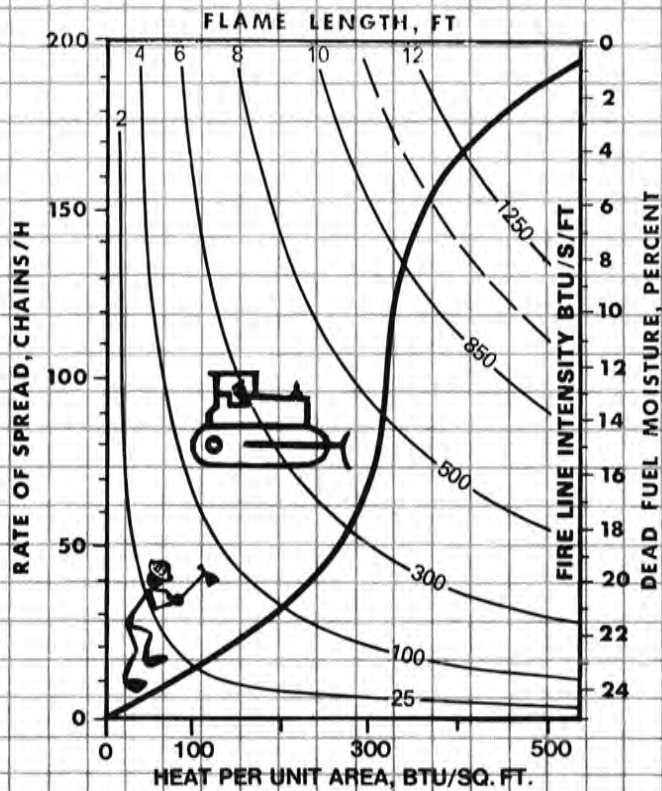
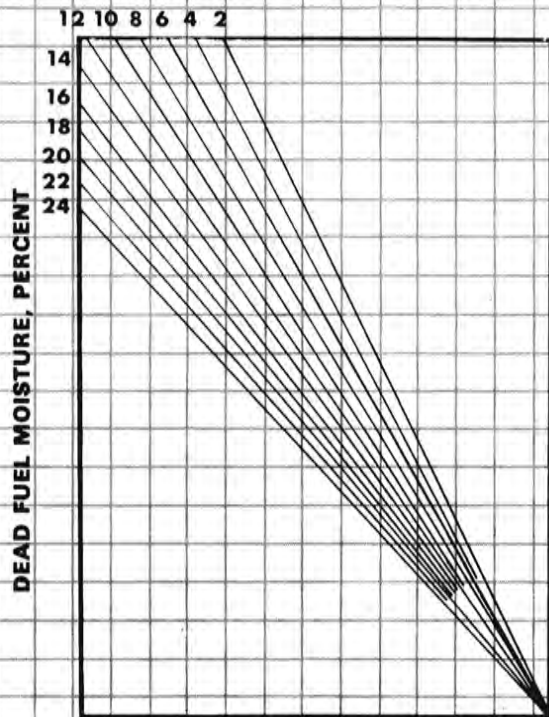


9. HARDWOOD LITTER - LOW WINDSPEEDS

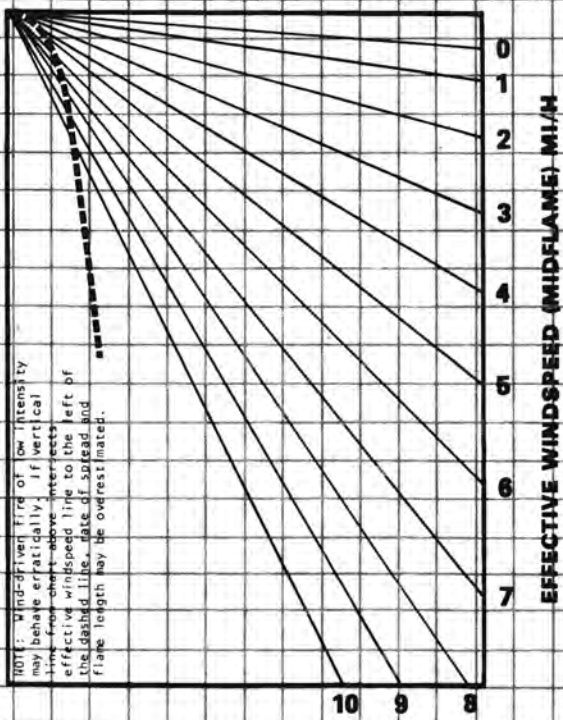
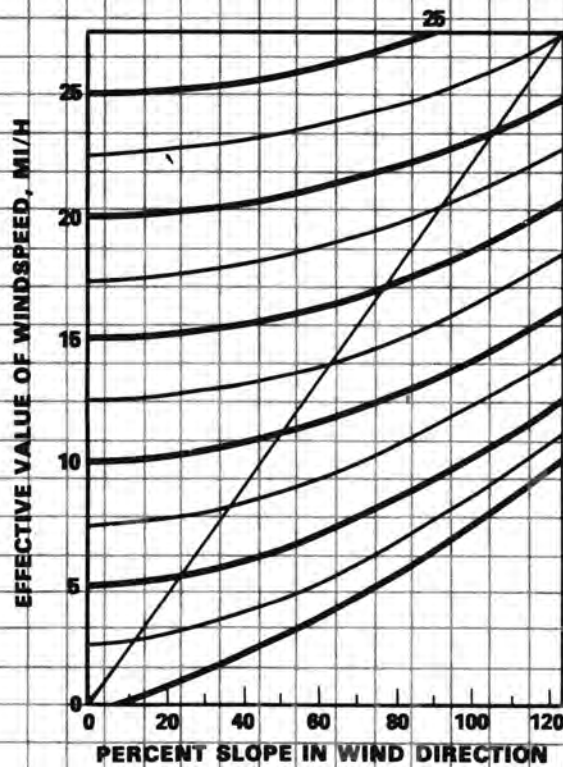
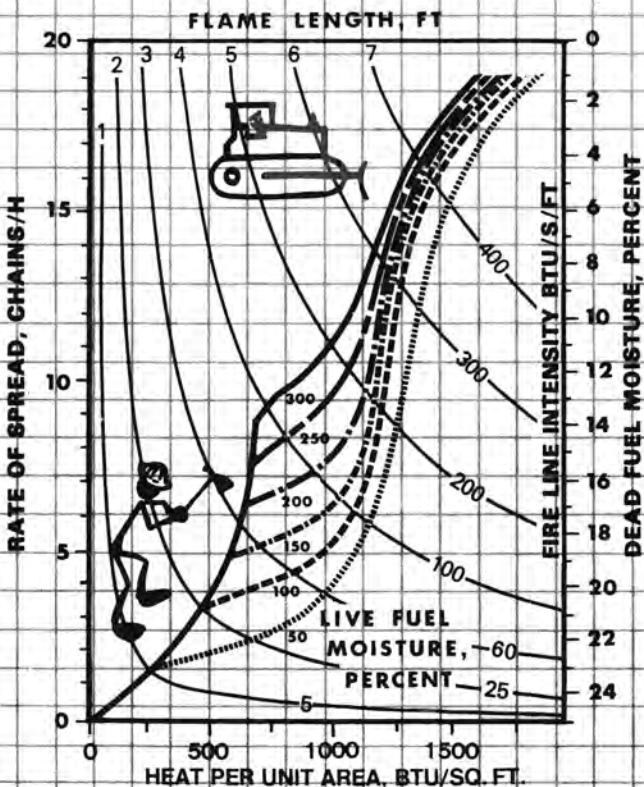
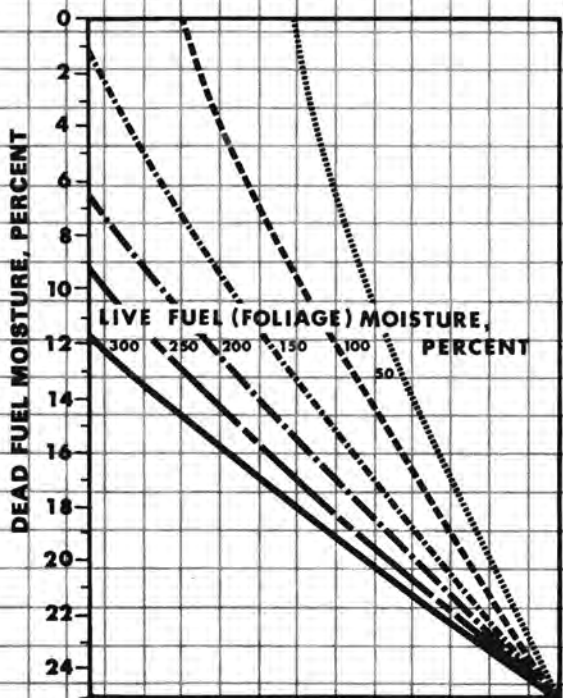


NOTE: Wind-driven fires of low intensity may behave erratically. If vertical fire front above intercepts effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

9. HARDWOOD LITTER - HIGH WINDSPEEDS

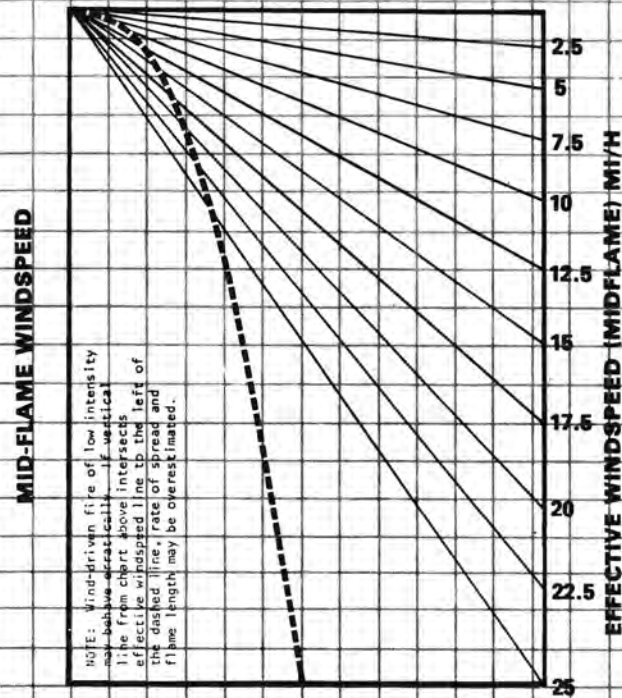
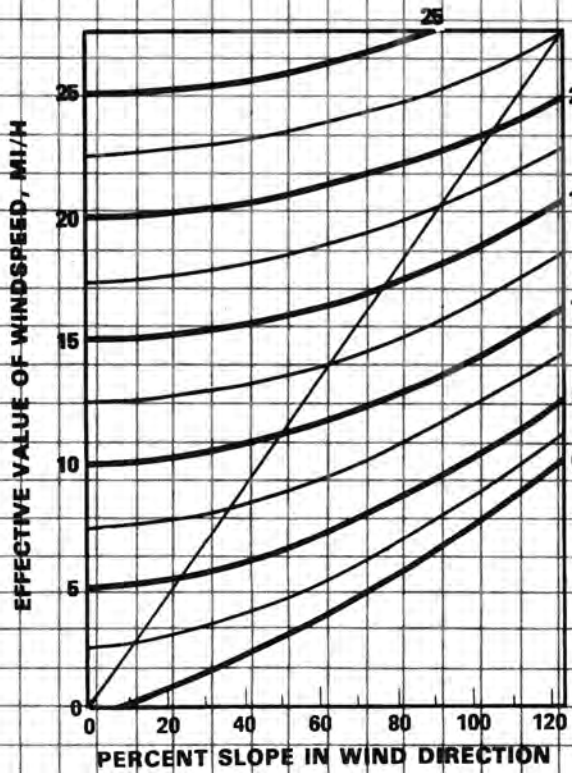
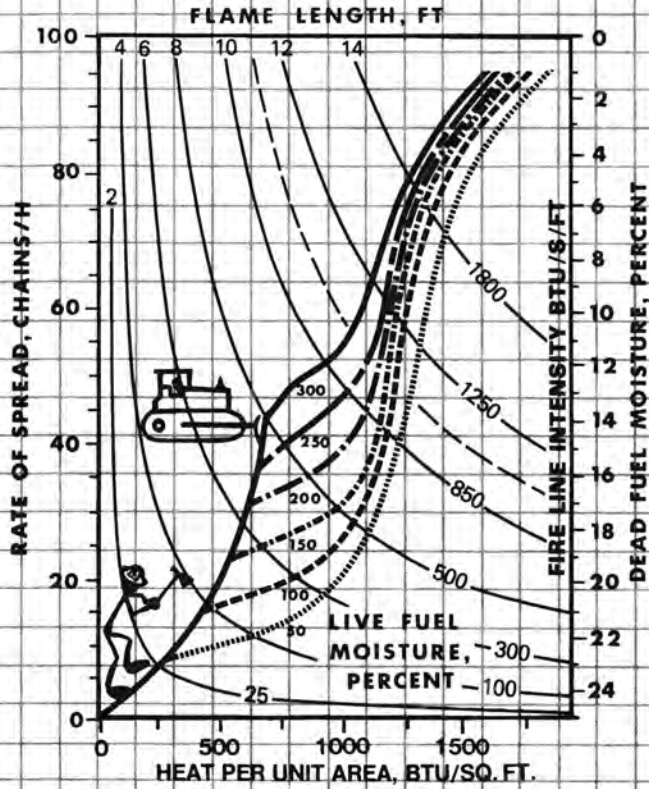
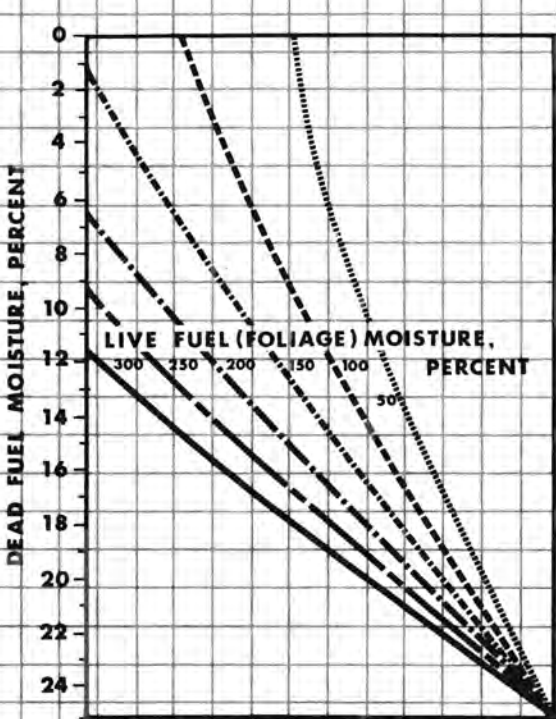


10. TIMBER (LITTER & UNDERSTORY) - LOW WINDSPEEDS



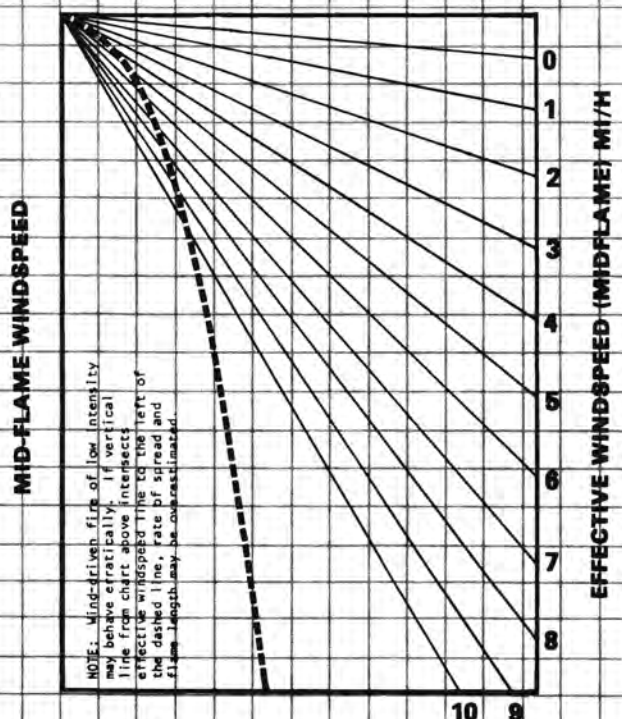
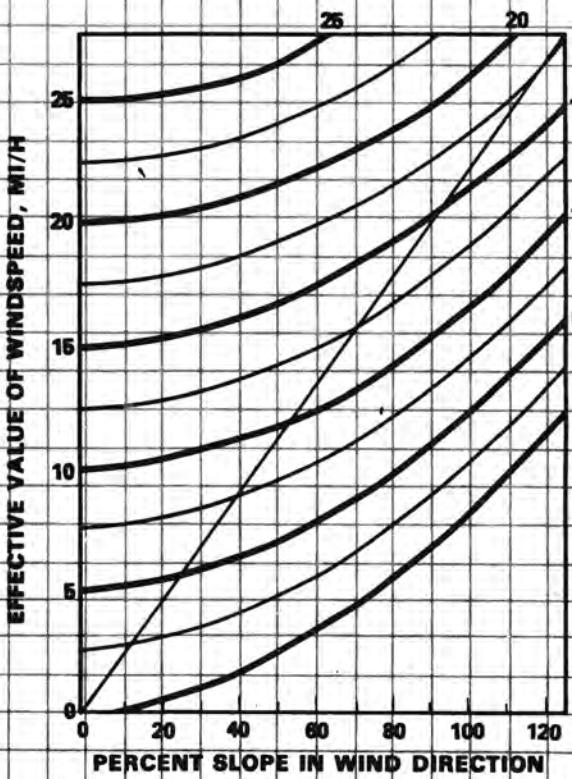
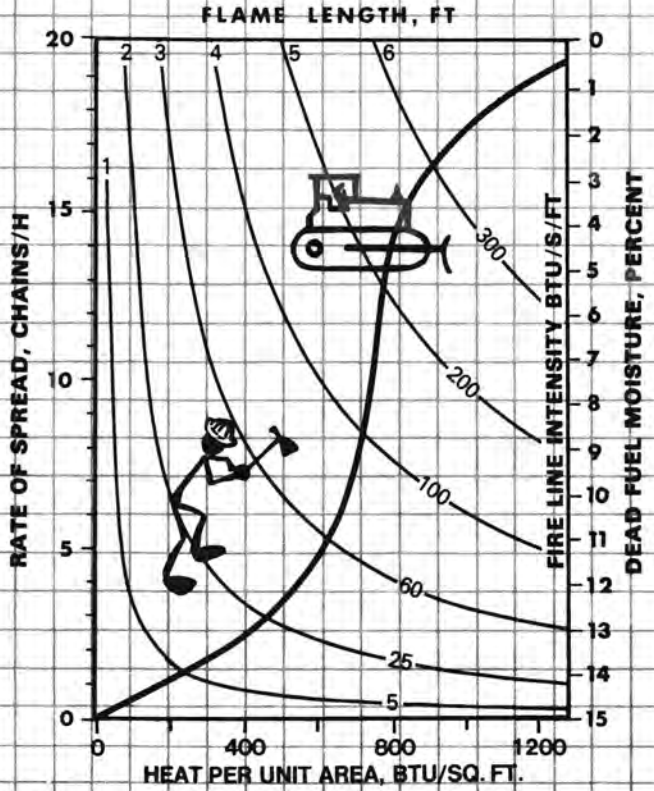
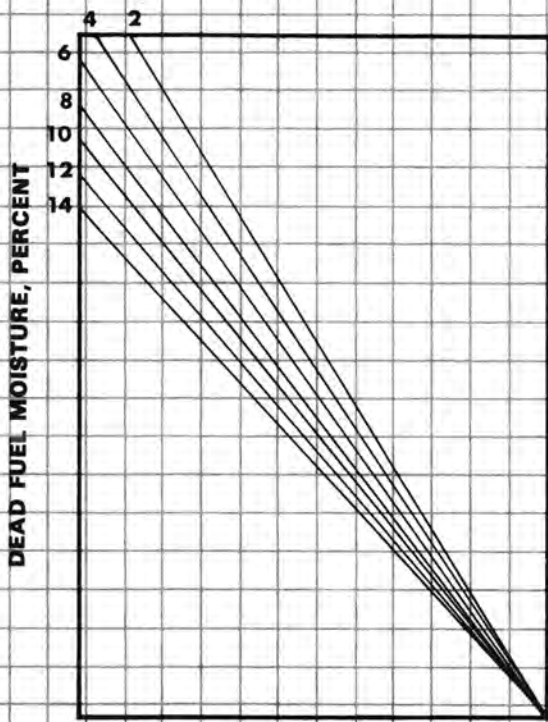
Fuel model 10 - high windspeeds

10. TIMBER (LITTER & UNDERSTORY)-HIGH WINDSPEEDS



NOTE: Wind-driven fire of low intensity will behave differently than indicated by the line from chart above. Intercepts of effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

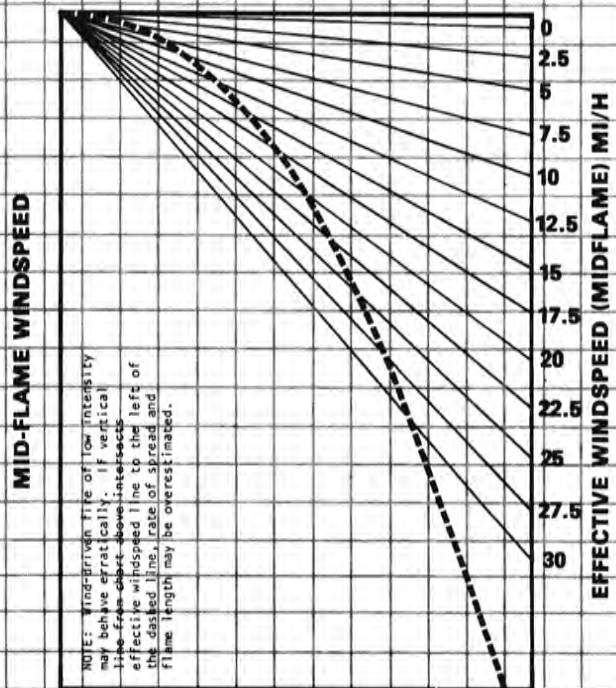
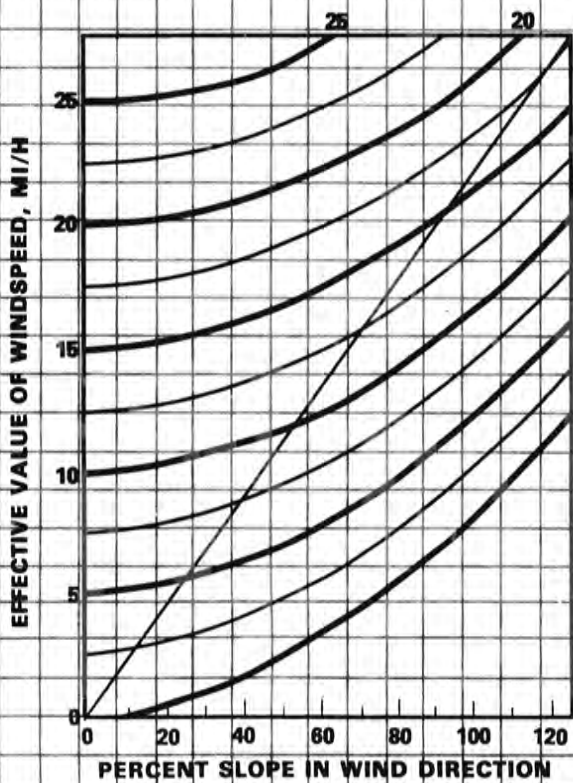
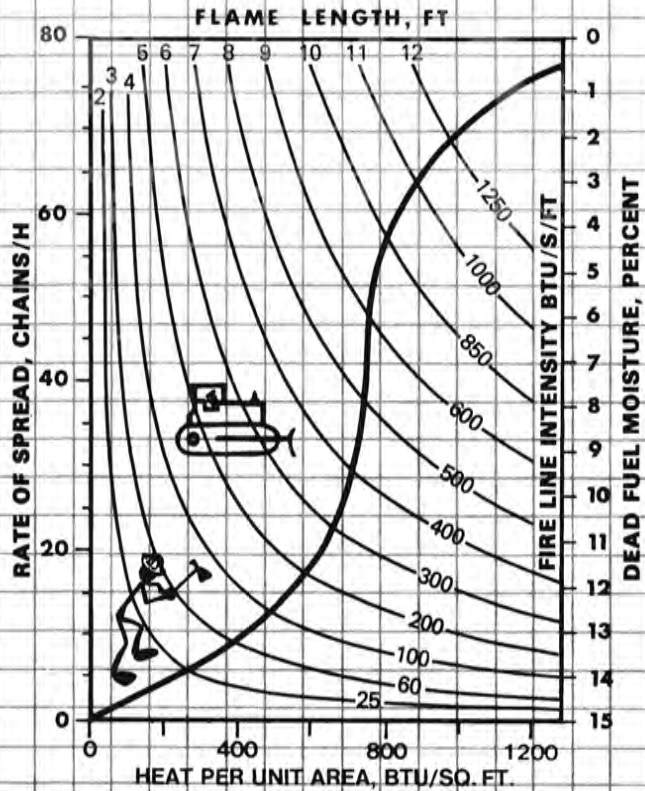
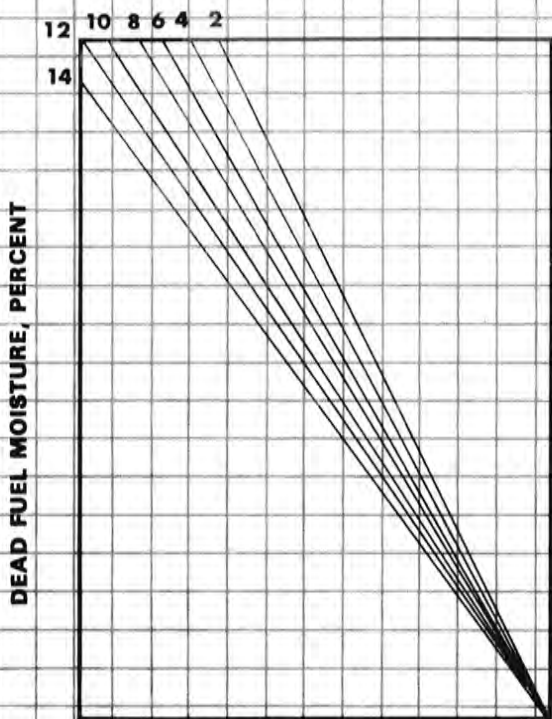
11. LIGHT LOGGING SLASH - LOW WINDSPEEDS



NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

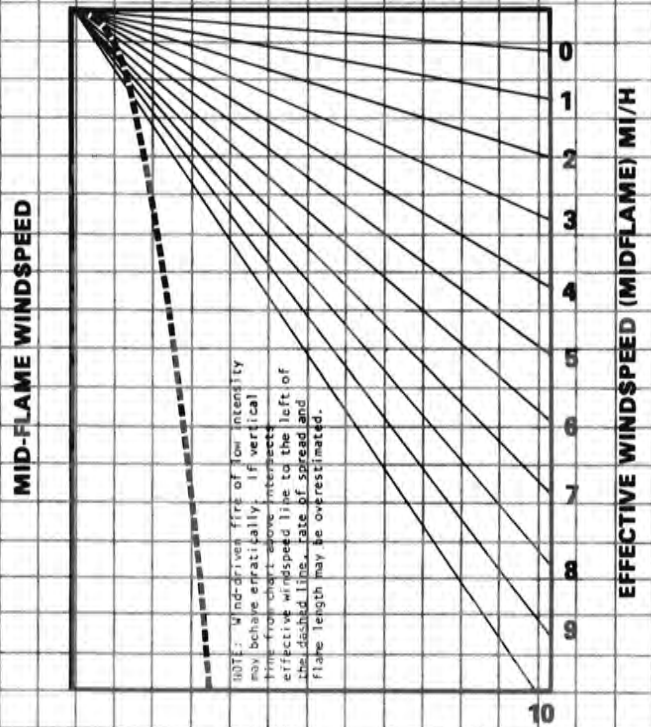
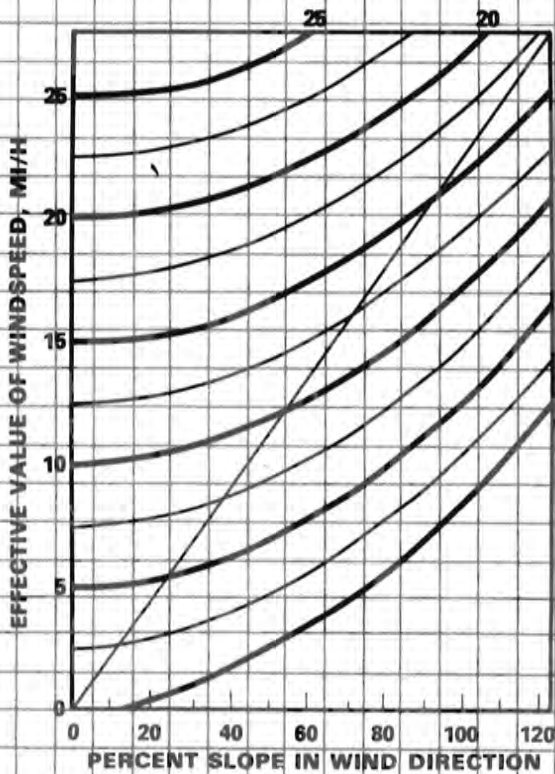
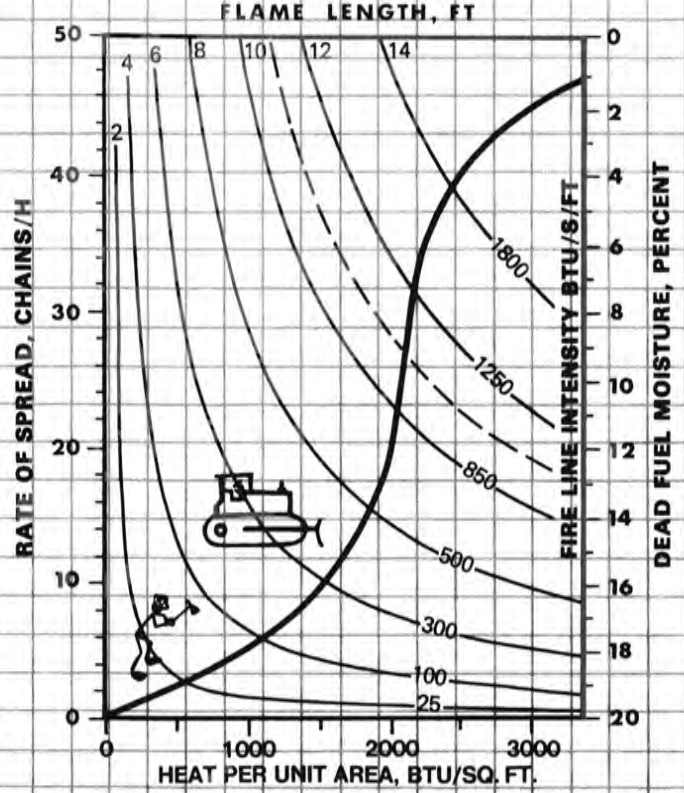
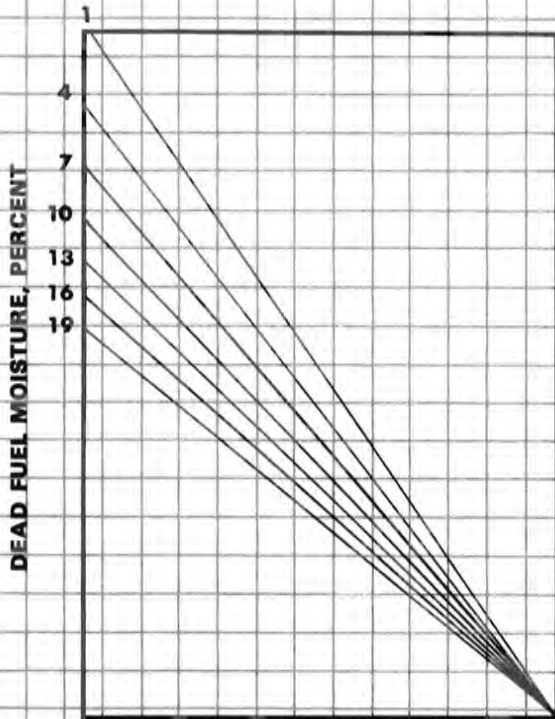
Fuel model 11 - high windspeeds

11. LIGHT LOGGING SLASH - HIGH WINDSPEEDS



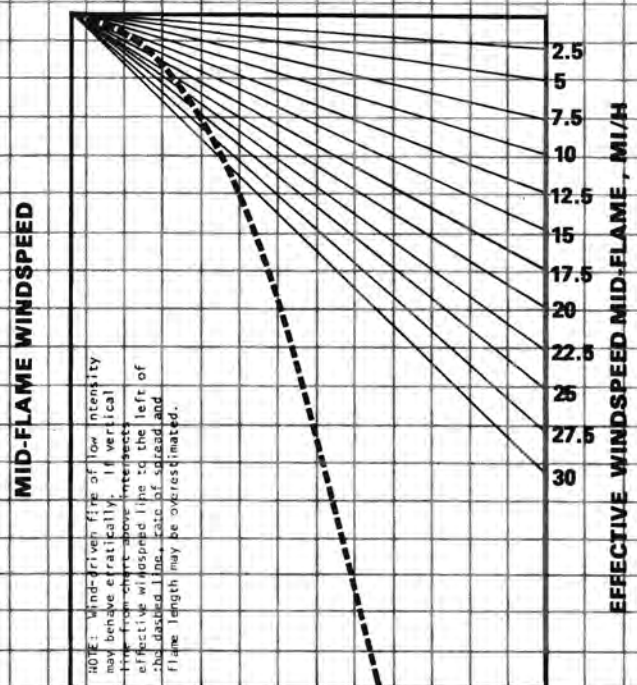
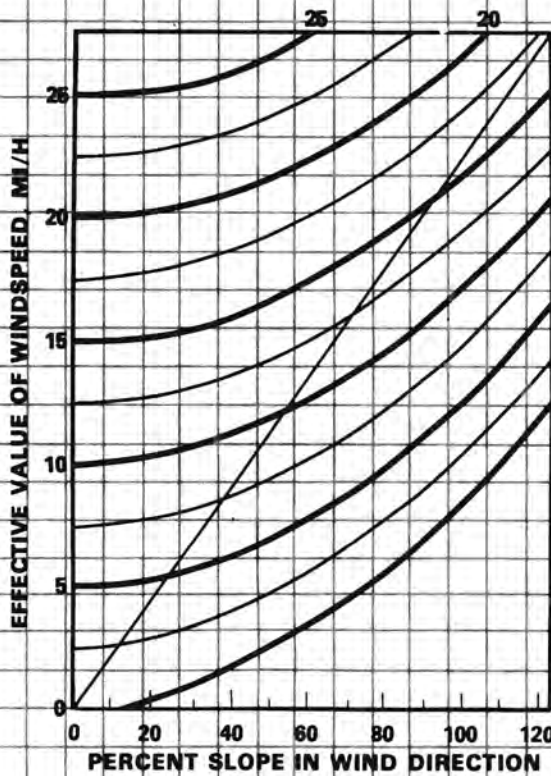
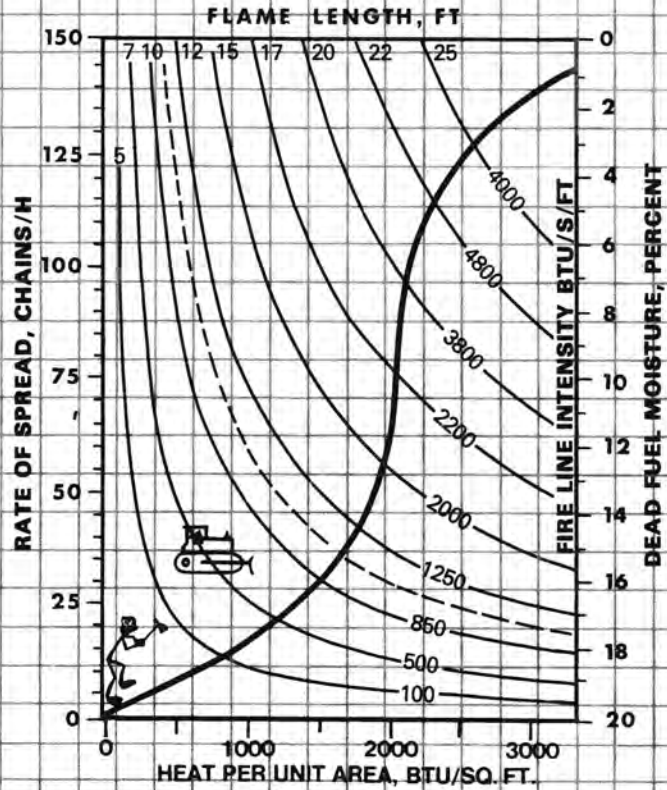
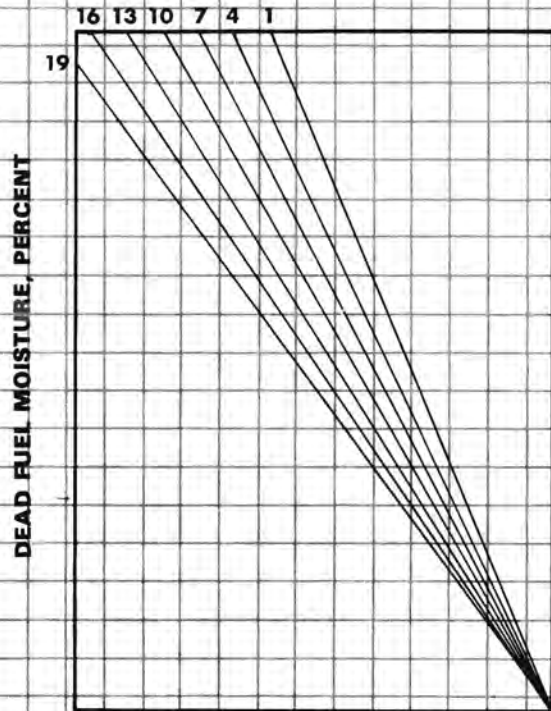
NOTE: Windspeeds of low intensity may behave erratically if vertical air flow is affected by obstacles. Effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.

12. MEDIUM LOGGING SLASH - LOW WINDSPEEDS



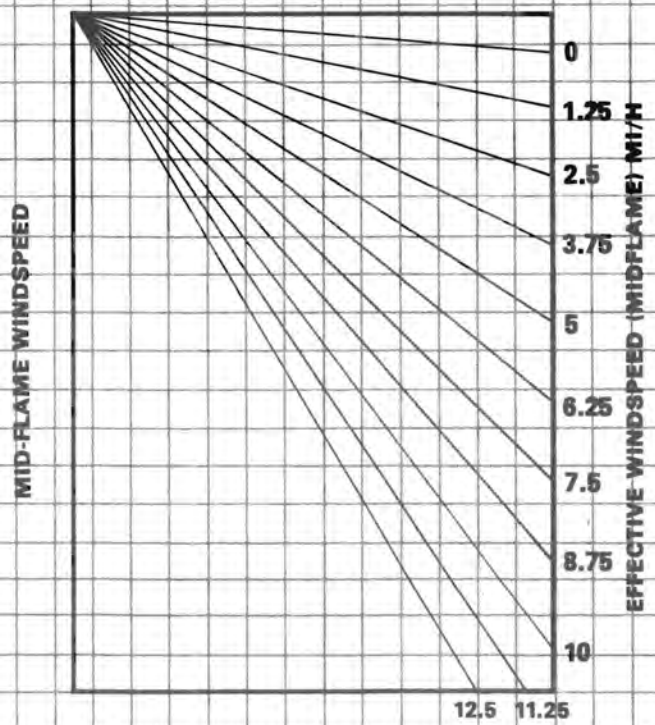
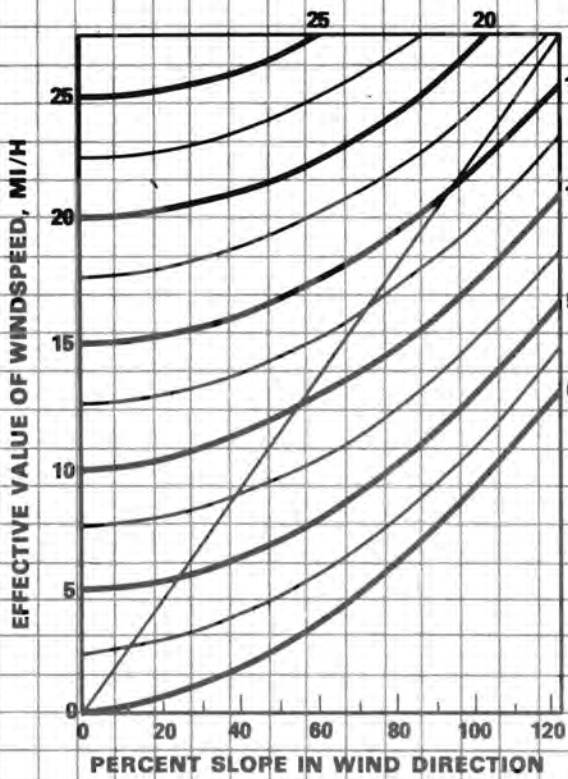
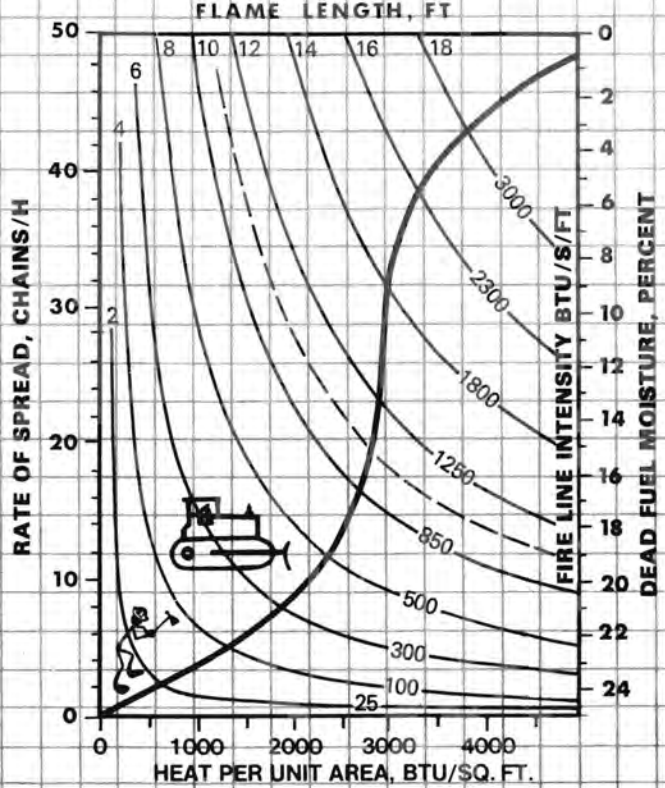
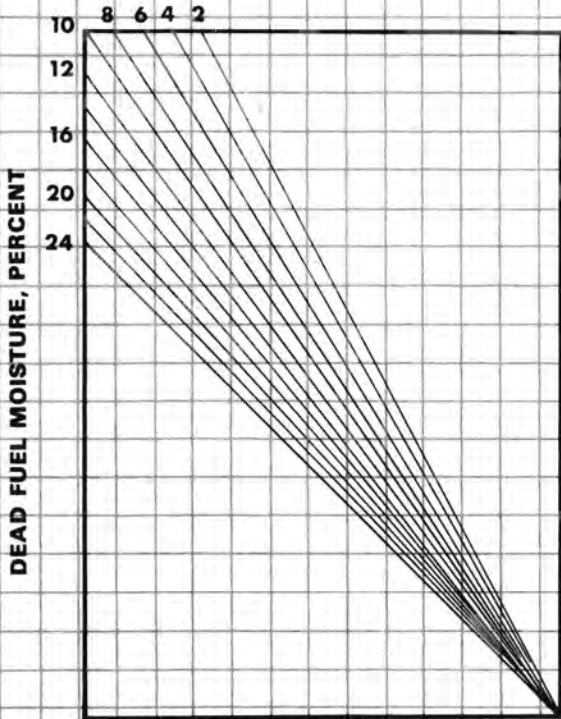
Fuel model 12 - high windspeeds

12. MEDIUM LOGGING SLASH-HIGH WINDSPEEDS



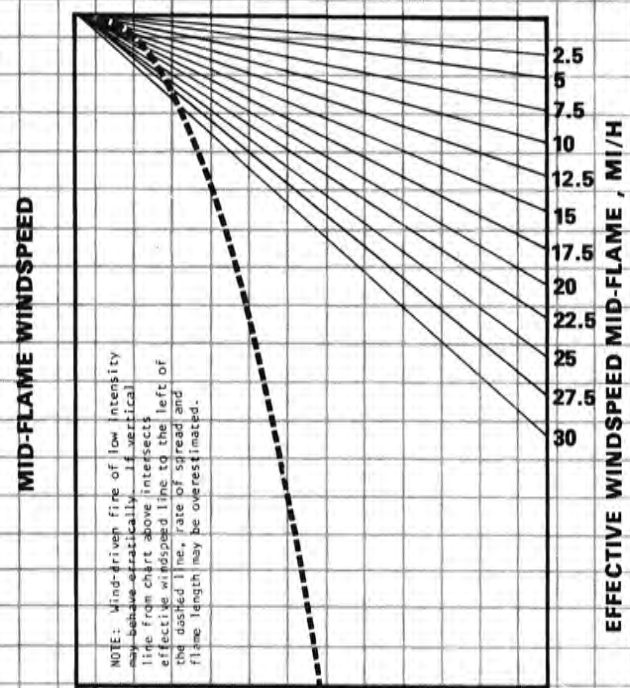
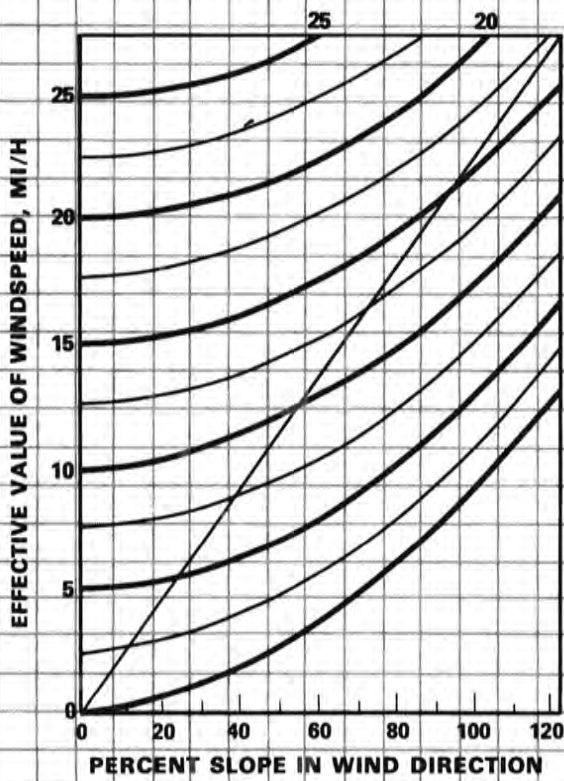
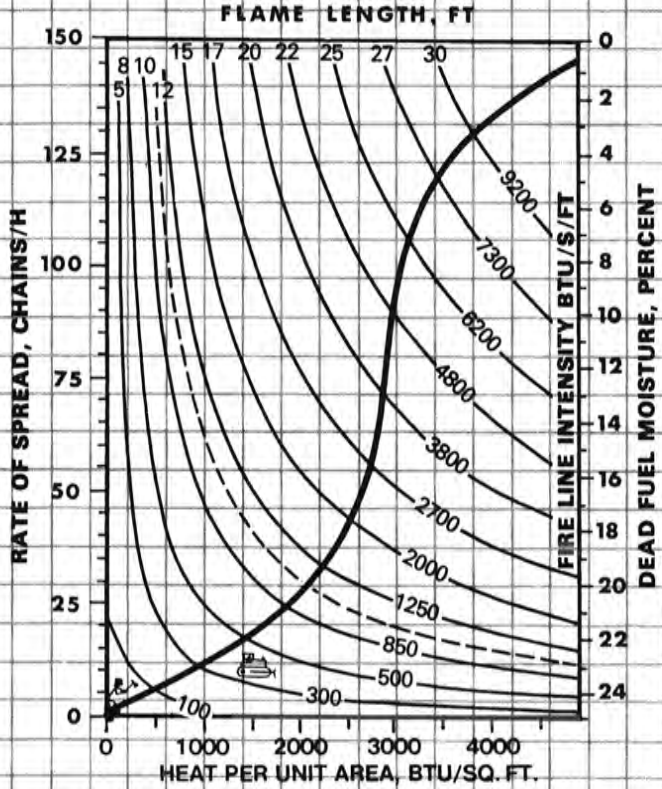
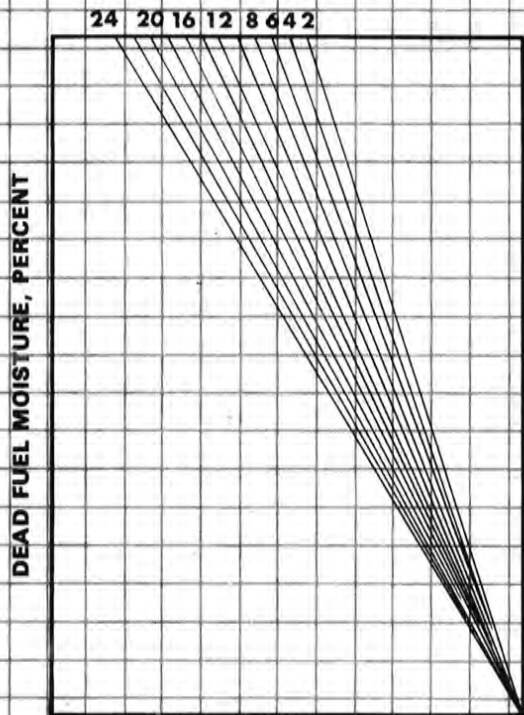
Fuel model 13 - low windspeeds

13. HEAVY LOGGING SLASH - LOW WINDSPEEDS



Fuel model 13 - high windspeeds

13. HEAVY LOGGING SLASH - HIGH WINDSPEEDS



NOTE: Wind-driven fire of low intensity may behave erratically. If vertical line from chart above intersects effective windspeed line to the left of the dashed line, rate of spread and flame length may be overestimated.